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Key to symbols used in Part one

with the title:

CUL	book located at Cambridge University Library
CUL.1900	book donated to CUL in 1900: full list in *Cambridge University Reporter* 15 June 1900 pp. 1079–80; we have included only those annotated.
Down	book located at Down House, Kent (other locations are in Cambridge unless otherwise stated)
B	book known to have been on board *Beagle*
pre-B	book owned prior to *Beagle* voyage but not known on board
S	book bears CD's autograph
I	book bears inscription to CD

notes and slips:

NB	note written on back cover of book
NF	note written on front cover of book
SA ⟨*pp...*⟩	sheet of notes attached between pp. . .
SB	sheet of notes pasted into back of book
SF	sheet of notes pasted into front of book

type of marking:

m	score-mark in margin; *md* doubtfully intended score-mark (eg *14–16m* means 'score-mark against lines 14–16')
u	underlining (eg *21u "organs|mind"* means 'underlining in line 21 between the word "organs" and the word "mind"')
w	word(s) written by CD: *wt*, at top of page; *wb*, at bottom
x	CD places an 'x' or 'X' in the margin
o	CD places an 'o' or 'O' in the margin (other kinds of shapes are reported as accurately as possible)
z	drawing or other marking
c	CD crosses out part of text of book

other symbols:

◆	deletion: neat scoring through
◊	word(s) erased or faded
♣	deletion: word(s) obliterated/errors corrected
τ	CD translates text of book
♠	CD writes/underlines a species-name in the text
↕	whole margin
℘	some pages uncut
✍	nondescript brown ink
✑	pale ink
✒	dark ink
⟨ ⟩	transcribers' editorial brackets
❑β	smooth mid-blue paper
❐ℜ	rough grey-blue/mottled paper
✏	pencil
✎	brown or reddish pencil
✐	blue or violet pencil
∉	CD's editorial markings on text of book
✃	comment cut or damaged e.g. in rebinding of book
®	comment damaged because page ripped away
u↔	whole line/sentence underlined
u±	more or less all of passage underlined
⇑	count lines from bottom of page
¢¢	calculations in margin
●	word(s) illegible
◗	part of word illegible
○	uncertain transcription

CHARLES DARWIN'S MARGINALIA

GARLAND REFERENCE LIBRARY
OF THE HUMANITIES
(VOL. 783)

I dedicate this book to
David Kohn *who sighted the fish in the first place;*
Peter Gautrey *who kept the nets in perfect repair, while*
Nick Gill *struggled to land what turned out to be a whole shoal.*

M.A.D.G.

CHARLES DARWIN'S MARGINALIA
Volume I

Mario A. Di Gregorio
with the assistance of
N.W. Gill

GARLAND PUBLISHING, INC. • NEW YORK & LONDON
1990

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Laudata sii, Diversità
delle creature, sirena
del mondo! Talor non elessi
perché parvemi che eleggendo
io t' escludessi,
o Diversità, meraviglia
sempiterna . . .

GABRIELE D'ANNUNZIO

'LAUS VITAE'

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In the first place I should like to thank wholeheartedly the three people to whom this volume is dedicated, and without whom it would have been impossible. David Kohn conceived the original project – though no-one anticipated the gigantic proportions to which it would grow. Nick Gill, my valued friend and collaborator, has worked as research assistant, general editor and 'typesetter', performing technical feats that baffle me utterly. Peter Gautrey, recently retired from the Manuscripts Room of Cambridge University Library, was always a superb source of warm and knowledgeable support: to this true gentleman, generations of Darwin scholars are deeply grateful.

It is also a pleasure to record our debt to the staff of the Darwin Correspondence project, especially Ann Secord, Janet Browne, Marsha Richmond and Stephen Pocock, who continually sustained us with encouragement and much valued advice and experience. Frederick Burkhardt kindly allowed me to take from the first volume of the *Correspondence* the list of books Darwin had with him on board the *Beagle*.

In the early stages my research was funded by the British Academy and later by the Royal Society, for whose support I am duly grateful. The work took us to Down House, where we greatly appreciated the homely efficiency of Philip Titheradge. It is also a pleasure to thank the staff of the University Library, particularly Janice Fairholm of the West Room, and Arthur Owen for granting special privileges of access to the manuscripts.

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M.A.D.G.
Cambridge
December 1989

contents

prologue and introduction

prologue

Some time ago David Kohn had the idea that it would be beneficial to have some kind of outline catalogue to Charles Darwin's marginal annotations. A long story and a number of years later, something rather more complex at last sees the light of day. Like all good stories, ours grew in the telling, and this volume is now intended as the first of three which will provide a complete transcription of the marginalia and a classified map of the whole corpus of annotations. The 'long story' by which the original germ has become a projected multi-volume set has involved the gradual addition of new layers, during which the bare catalogue became first a partial transcription and then a complete one, hence now entitled 'Catalogue and transcription'. By a parallel process, what started as a brief conceptual record of the principal content of the annotations in each book eventually gave birth to the huge document which forms Part two of this volume. We felt that the term 'conceptual concordance' would designate our purposes in Part two readily enough; further explanation is given on p. xviii. Finally, however, we concluded that our readers might be unnerved at the thought of a text of this density not having an 'index', and so the hybrid title 'Index and conceptual concordance' was eventually fixed.

The process has thus in essence been a continuous amplification of an at first very narrowly defined objective – almost echoing CD's request:

"Clean well the pencil marks.– Keep Book Clean. Write smallish on one side, number your pages." (see p. 227g)

We can fairly claim to have done a little better than that, given the latter-day wonders of camera-ready copy.

CD's instructions here were in fact originally issued to one of his amanuenses, probably Mr Norman, a shadowy figure for whom we came to feel a considerable sympathy. The ground level of our work has been just about as pedestrian as his, in copying everything out to provide the 'Catalogue and transcription' which forms Part one of this volume. At least in Part two, and more especially here in this Introduction, we have the luxury of spreading our wings a little into the realms of interpretation; such joys were not to be for the hapless amanuensis. "Mr Norman end here" (390c), CD instructs whenever the interesting bits seem about to begin.

Having established the foundations of our role, we headed off towards finding our material. The principal locations of Darwin's annotations are the margins around the text of the books, separate sheets or 'slips' of paper, and the front and back inside covers of the books. These different locations, we believe, constitute different layers of annotation emanating in the main from different occasions on which CD paid attention to a book. The 'slips' are now mainly found stuck or pinned inside the back cover – though we believe that is not where they spent the prime of their working lives. The quality and the colour of the paper used for these slips vary, again probably implying different bouts of attention. We have seen fit to distinguish three broad types: smooth blue paper; rougher yellow-mottled grey-blue paper; and the rest (mainly nondescript white or greyish paper). We report the material from these various locations in the following order: notes and/or slips inside the front cover; notes and/or slips inside the back cover; slips attached anywhere else in the body of the book; marginal marks and comments in the body of the book.

As to our presentation of the material transcribed in Part one, we have provided a 'Key to symbols used in Part one' on the sheet at the front of the book. The key is hopefully self-explanatory; the only further detail which needs mentioning is that each *column* in Part one is numbered, and is referred to as if it were a page.

So much for *our* code-marks; CD however has some of his own. The capital letters "Q" (for "quote") and "NQ" (sometimes apparently for "not quote", sometimes for "note quote") are frequent. There are also other much more occasional letters, such as "H" (for heredity or inheritance), "S" (for selection), and "D" (usually dichogamy). But others are less fathomable: e.g. brown or reddish pencil crosses: "X means used for 1st volume", he says at a certain point (122c) – but does this apply generally? As with the mysterious coloured ticks (or are they 'V's or 'L's?) which pop up here and there, and the 'O's in the margin in some plant books, we have not thought it part of our job as transcribers to decode these marks, and are indeed thankful to be able to hand such puzzles over to the wider company of Darwinists. It is worthwhile, however, to draw attention to the way these marks run through the craggy mass like thin veins of special little crystals, presumably meaning something.

Our fitful involvement over the years in the production of this material, at computer terminals and in libraries, both in Cambridge and at Down House, has included many hours spent in the U.L. archives themselves – a privilege which facilitated our work immensely, despite the curious effects of the changeless bookstack weather. The project has also survived a double bomb scare, a fire beneath the computer centre which put the tapes out of action for many a long week ('on a shelf gathering dust' becomes in these latter days 'on a tape gathering smoke particles'), and the near-arrest of the assistant author in a certain College library where he was mistaken for the key to a missing case (*cf* fn 12). CD's remark to the intrepid Wallace felt at times distinctly pertinent:
"I am astonished you ever returned alive" (842a)

"(from now I shall skip largely)" (812d)

Here we find CD instructing himself to pay only cursory attention to the remainder of the book in question (Vaucher's *Histoire physiologique des plantes d'Europe*). What, more generally, has our reading of his marginalia revealed to us about his procedures in reading the scientific books he owned? Given how systematic CD seems to have been, it is not difficult to build a general picture.

CD acquires a book and begins reading. It does not take him long to make his judgment about the quality and usefulness of the book. If, as was quite frequently the case, the verdict was broadly dismissive, he would usually persist, but less intensively and only in the hope of encountering a handful of useful pieces of data: hence the large skipping, or comments to the effect "only skimmed". During this basic reading, intensive or otherwise, the margin is scored and peppered with comments. At the end of the reading, he would now list out the locations of his more important comments and margin-scores on an inside cover (usually the back cover), occasionally adding brief mnemonic notes.

The book will now probably lie fallow – maybe even for a number of years – until the lucky moment arrives for it to participate in the process of data-collection for a CD publication. At this stage, the list of locations is re-examined, and a new, shorter list made on a separate sheet of paper of the most important locations, now with details in the form of long-hand notes about the information to be gleaned at those locations. "I will cease extracting", he says at a certain point (668f), reinforcing our growing impression of him as a kind of intellectual dentist. We have the strong feeling that he hardly ever reread the book itself – a feeling underlined by his exceedingly rare self-instruction to "Read second time" (545c), which would scarcely make sense if he usually did this anyway. However many years later he returned to the book, he was confident that he had already 'extracted' everything of value.

The separate slips containing the vital gems at this point reach the prime of their working lives: we imagine those relevant to the publication in progress now collected in a heap (or in CD's systematic case, no doubt a pile) on the writing table, being finally reviewed. It is at this stage, we presume, that the code-letters "Q" or "NQ" are entered on the slips and/or at the original locations in the text against the items he has decided to use. The set of slips, together with CD's own notes and drafts, combine for a while into 'Portfolios of working notes' for the writing of the publication in question. Once the publication has been pieced together, "slips all put in proper places" (572h) – i.e. stuck for any future reference usually inside the back cover of the now fully-harvested book. A slip may take part in this 'cycle' a number of times – its important underlying content, as we shall see later, being the broad theoretical themes invoked by the data recorded on it.

There are of course exceptions to this general procedure – though not, we feel, all that many; and only two are worth noting specifically. The first concerns books that CD read early in his career, where one is likely to encounter inside-cover comments not referred to page-numbers in the text of the book, making recovery of the original data extremely tiresome. The other, more significant exception is the occasional set of slips stuck into the text of a book – these were quite possibly part of the initial thorough reading, and are there to facilitate understanding of the text, especially anything requiring calculation.

It is for the wider company of Darwinists to embellish this basic picture of CD's reading habits. Our brief outline here is but the prelude to analysis of his interaction with his scientific library.

We found one annotation particularly evocative as a metaphor of the contents of the marginalia as a whole:

"I suspect reefs of diff strata in diff parts" (536h)

Apart from reminding us of CD's early involvement in geology, this remark suggests a summary of our hypothesis about CD's main mode of 'processing' scientific reading matter: the margins, end-notes and the slips of various different paper types constitute physically discrete strata or layers, corresponding more or less closely to different bouts of attention. Insofar as these bouts imply an accumulation across different 'layers' of time, the metaphor of geological deposition seems quite reasonable.

In fact the 'layers' concept begins to unlock the inner nature of CD's mode of working with sources: and indeed, we should ideally look upon the whole great corpus of marks and comments not piecemeal, but as a *single* complex laminate – fused layers not only of time and attention, as we have seen, but also of types of *response* to the source-material, and also layers of *themes* reflecting CD's lifelong theoretical preoccupations.

(ii) CD's responses

It is CD's extraordinary single-mindedness, already apparent in his hyper-methodical reading habits, which is reflected in our perception of the marginalia as constituting essentially a single structure. Furthermore, CD had his theory pretty well framed before all but a handful of the books represented in this volume were seriously read. In the main therefore he was not reading to theorise. There are, rather, some half-dozen 'layers of response' we detect in the marginalia.

i) *"Many valuable facts referred to proper places"* (159c)

CD's principal 'layer of response' to a text, constituting the great bulk of the annotations, was in fact data collection, or 'extracting', to revive the CD term we encountered earlier. At first sight, the sheer detail, quantity and range of these 'extractions' might suggest vicarious activity, but that is absolutely not the case. On the contrary, the whole process was strongly purposive – namely, to assemble a vast store of sometimes tiny points of information in order to illustrate and support the Great Theory. This résumé is, as CD might himself have remarked:

"good but too hasty.–" (578f)

We qualify this résumé to some extent in pointing to the existence of *several* 'layers of response'; nonetheless we believe the reader will see that 'our man in the margins' appears more relentless, dismissive and self-regarding than his modulated public persona would imply. In a sense this is hardly surprising – anyone's personal notes are likely to have a greater curtness to them than their finished texts. Nonetheless two impressions may merit an airing here.

CD often judged a book on the sole criterion of its relevance to some aspect of his Grand Enterprise: "After p.109 not one word for me" (675d) he pouts, almost; "This only useful for ancient History of Dogs . . . I doubt whether any use" (843e–g). There are other not infrequent remarks to the effect that books failing to minister to his need for data are *eo ipso* pointless – his dismissive sign "O/", meaning "Nothing for me", being tellingly close to the copy-editor's symbol for "delete" (which his sign can also mean when he waxes subeditorial, of which more anon). "Erase from memory" might be the late-twentieth-century translation.

The undercurrent of predation here is notable in itself; but the manner of it – i.e. its near-total absorption in pinning the already-formed *Weltanschauung* down to fact – leads to the first of our two impressions: that, from quite early on, CD's mind was no longer really 'open' at the level of high theory (however flexible he remained in respect of subvenient principles).

Our second impression is also connected with fixation. As giants of nineteenth-century creativity, two figures in particular make excellent subjects of comparison – Charles Darwin and Richard Wagner.

"What can I have said" (794c), CD might have been prompted to wonder . . .

We shall develop this line more fully later. The Darwin–Wagner similarity of relevance immediately is the power of their obsession with their work. Anything that crossed their paths was to be assessed for its usefulness in the construction of their creative monuments. This is reflected in Wagner's notorious personal exploitation of everyone he encountered. In Darwin's case everything tended eventually to be pressed into the service of the Theory. Thus the parts of his correspondents' letters not dealing with science were crossed out so that they would not distract from his rereading of the relevant parts. Furthermore, when he wanted to study infant behaviour, he began by watching the behaviour of his own son William, whose development, to cite Janet Browne in Kohn 1985,[1] he followed "as if it were [that of] a barnacle or a primrose". He even had ladies who obligingly made their children cry so he could watch the infants' reactions. These points tend to amplify our view of Darwin's public persona as a certain modulation of the 'inner man'.

ii) *"quite opposed to my views!"* (111g)

Connected with the enterprise of data-extraction, and accounting for a large minority of annotations, the second 'layer of response' we detect is CD's evaluation of an author and his work. These reactions are usually very forthright, again not infrequently self-regarding: "excellent summary of Whole; approves of what I have said" (239b); sometimes rather patronising: "Most interesting indeed quite amusing" (393g); or "Good Boy" (242b); and occasionally downright rude: "If I want to show what rubbish has been written a translation of this will do.–" (485d). There is plenty of generous praise – "all marked wonderful book" (857a) – but on balance negative criticism outweighs the positive variety.

"Unreadably dull" (738b) represents a quite noticeable type of reaction. CD certainly responded to a degree of entertainment – "2d part funny passage" (217d) – and disliked being bored by an author. CD himself is quite often entertaining in his reaction to an author and his work; naturally we will allow the reader to stumble across these little gems. Our own warped sense of humour detects a tendency towards poisonous wit, especially in putting an author down: "ass prevails – one here", he notes on Lucas' *Hérédité naturelle* (521a), along with a number of other remarks which sound scarcely straight-faced, despite the seriousness with which he took the book as a whole.

However, let us *en passant* charitably suppose that CD's reference to Haeckel as "Hack" (358d) owes more to abbreviation than to denigration . . .

iii) *"World simple"* (541a)

CD is evidently more forceful in his marginalia than in his published works, which are the province of what we might call 'Selection with a human face'. He appears aware of this as deliberate: "I must express things diffuse and with a most wearisome pretence to formulas" (516g), he moans, contemplating the requisites of public style. He has to be so to speak 'the Very Model of a Modern Major Scientist' – but in his inmost self he is perhaps convinced that the world *is* simple, and is quite impatient of all this deference to 'ifs-and-buts'-ism, disclaimers in face of irritatingly incomplete evidence, and openers to the effect 'it is therefore by no means inconceivable that'. CD himself might have thought this comment

"too strong" (425b) –

and it may indeed seem strong in description of someone who after all spent a lifetime reading and writing in meticulous and cautious detail. However, a further example may strengthen the impression; and one basic consideration may help dispel the paradox.

The example is the extraordinary tone of CD's final dismissal of the thrust of "Bronn's criticisms for New Edit of Origin" (181a–182c) – for example "As I cannot justify my opinions in any one single case, so I need not in any.– is as true as it is severe– Though I can in no single instance . . . explain changes yet the structures &c led me to conclusion.–" (182b–c). And that's that.

The consideration is that CD's 'diffuse and wearisome' complaint (and indeed this last quotation) implies that he had seen more fully and more definitively than he felt able to show. Other evidence for this takes us in the first place back to the Notebooks,[2] and specifically to that point where CD, in some apparent haste perhaps propelled by elation, sets down the finally formulated concepts underlying natural selection. He had held the workings of the living universe in his head with a sense of clarity and comprehensiveness hitherto probably given to no-one. He had struggled with the issues for a long while, but now he knew, and knew that he knew: he had the Key.

One probable lasting consequence of these hard-won certitudes of insight was that CD may never have felt in need of an elaborated methodology or philosophy of science, confident enough in his seemingly natural instinct for the relationships between solid evidence, creative intuition, the need for 'wearisome formulas' of ever wider explanatory power and for physically plausible models of the world. That something like this is the case is evident in the marginalia from the near-absence of our third 'layer of response': comment at the level of high theory.

Most of CD's comments at this level are really quite perfunctory, even when he is assessing work he took most seriously, or work by earlier evolutionists. It is as if from the security of his vantage point he would see others working (like Candolle?) on areas too specific to enable an appreciation of the Grand Process: "he has not the Key" (145b) – or attempting (like Chambers or Lamarck?) to scale the heights with an insufficient database and an insufficient respect for physically feasible mechanisms: "It is doubtful whether Lamarck has done more good by awakening subject, or harm by writing so much with so few facts" (477a). CD by contrast had the overview well before he came to the bulk of his reading, in which he was forcing himself by the systematic procedures we outlined before to acquire and retain the detail. He had no great need by this stage to rehearse his case in defence against the theories of others. Even his comments on the higher principles relating to his own theories are in the main quite cursory and matter-of-fact. "The Natural System," he comments during his reading of Herbert (probably during the 1840s), "seeks to know relationship & does not attempt date of separation" (376e), implying that the notion of descent with modification was already to be taken for granted, and that any troublesome Grand Concepts found upon the lurk had merely to be pushed into line, or reduced to a purely 'operative' status no longer in control of the debate: "It is succession, not resemblance which makes 'a species'"; and within any one such line of succession "Comes to what I said, amount of difference deserving a name" (630b ; *cf* 317f). The conceptual pragmatism here sounds almost off-hand. But we should resist seeing it as a kind of opportunistic abdication of the old problems; it is, rather, the considered solution to them. Furthermore, this attitude is applied consistently, in his understanding of scientific method, his whole defence of his theory (see *Variation*, vol. 1, p. 9), his tiffs with Huxley over experimental proof of natural selection, and so forth. Further thoughts around these issues are to be found in Di Gregorio (1981);[3] it can now be added that CD's remarks in the marginalia, and the fewness of them, clarify that his largely unargued philosophical position may owe more to feel, instinct and 'having the Key' than to intellectual decision at a philosophical level. Here the marginalia are the crucial bridge between the raw insights of the Notebooks and his considered but inextensively supported comments on method and theory made many years later.

Such, then, is our third 'layer of response', almost missing. In fact, of course, in a different sense it is there the whole time: it resides, as we shall see, in the thick weave of topics and themes underpinning the whole corpus of annotations, and is thus imprinted – "diffuse" indeed, and sometimes even "wearisome" – on every comment. However, the thinness of the layer of explicit 'remarks on high theory' may come as a disappointment to those who turn to the marginalia of a Great Thinker expecting them continuously to overflow with Great Thinks.

iv) *"must be a misprint"* (295d)

CD may have found formulae tedious, but he was by no means averse to a bit of genteel pendantry now and then. He not infrequently trips a (living) author up on spelling or other detail; more significantly on misquotation of himself. Sometimes these minutiae are noted down alongside more substantial comments which look like scraps of drafts of letters to the authors in question: "Allow me to point out that you have unintentionally misrepresented me . . ." (223g); "I am glad of your somewhat changed views . . ." (838c); "eheu! date wrong" (537h). Our fourth thin but distinct layer is thus a combination of CD waxing subeditorial, and a scattering of footnote fodder for future volumes of the *Correspondence*[4] . . .

v) *"What I do not understand"* (471f)

Here we find CD alluding to a fifth 'layer of response', requiring little comment as such – a relatively thick vein consisting of translation and/or close paraphrase of the original text, especially prevalent in German books, but not unknown in Italian or even French books either. In the case of German, this may in part have to do with the tribulations of the Gothic script adding themselves to the trials of the language. But in any event, the consequence for the reader is that the number and density of annotations in a book are no clear guide to the importance either of the book or of the marginalia it contains. Hence our annotation of the title page of Part one, taken from CD's annotation of Candolle: "Upon the whole nothing can be inferred from this list" – a light-hearted motto, but intended as a serious *caveat*. Indeed, any comparison of the entries for Candolle and Gärtner, the latter taking more space, will quickly show that the former is of far greater importance.

vi) Mention of Gärtner brings us to Darwin's Joke, and thus to our sixth layer, 'general wit and merriment'. It is pleasing to note that CD left a few examples of the art of being serious without being solemn – such as the *doubles entendres* attending the 'cross foxes' of p. 705h, the 'high fish' of p. 155a, and the 'boring sponge' of p. 673d – and that he also shows the tendency of the highly creative mind to put things to itself in a radically offbeat way, as with the comment about the 'man cut in twain' (see p. xxix). However, we will spoil the reader's fun of further discovery only in respect of the aforesaid Joke. It is to the effect that Gärtner, despite the name, was probably not much cop as a Gardener. It is actually more important than its flippancy might lead one to suppose: in the first place, it demonstrates that CD was good enough at German to invent a bilingual pun, and thereby lays to rest the myth of his alleged ineptitude at that language. Furthermore, CD liked his Joke. This we know because he chose to share it with the future mildew of the margins not just once, but twice (374c, 277a–b). 'It is therefore by no means inconceivable' (to coin a phrase) that this implies a simultaneous reading of the books in question. CD was sporadically given to dating his comments; following through the more, and less, serious cross-references may thus eventually enable the making of a workable historical map of the whole of his interaction with his scientific sources. As CD himself remarked, albeit in a rather different context:

"light will be thrown on the origin . . . The meaning of this cd hardly be misunderstood, but I can see is not the period of going into details." (358f–g)

vii) Nor indeed of going from the marginalia to CD's private life. Our last layer – another almost absent stratum – consists of very rare and insubstantial glimpses (always assuming, of course, that his rapturous "Flora!" of p. 839c does not address a mistress hitherto hidden from history). There are one or two mentions of (genuine) relations, and the occasional name of a pet or other animal. Most of these references analyse details of behaviour – reinforcing our earlier implication that CD was often unable to resist surveying even the domestic scene with the professional eye of a proto-ethologist.

(iii) CD's themes

We meanwhile must now pass back to surveying the world at large. Having provided a brief description of the strata visible in the mass of the marginalia, we need now to look more closely at our first layer, the 'data-processing' to put it crudely, that forms the bulk of the annotations. It is time to investigate its own internal stratification – the layers of themes and topics – and hopefully in so doing to discover what CD might have termed the

"whole key to theory" (164h).

The major layers we are considering here are the great themes and subthemes that CD pursued (or that pursued him) throughout his career. They function like the *'Leitmotive'* of a Wagner opera, or, to echo Sloan's not dissimilar analogy:

> a complex keyboard instrument with several keyboards and registers, these registers each able to act sometimes in solo, other times contrapuntally, and at times in synchronous harmony.[1]

A Wagnerian *'Leitmotiv'* has a comparable flexibility; the *'Leitmotive'* interwoven are the constitutive matter of the whole composition, and they are repeated and evoked whenever logically necessary. None of them is ever forgotten or allowed to drop out. Similarly in Darwin's case:

> Some themes and registers form dominant melody lines at various times . . . Other themes function more as a *basso continuo,* often submerged but nevertheless present if one looks closely enough. (Sloan again.)

This procedure enables continuous integration of detail into the whole, and enables detail constantly to refer to the big serious themes – for example the *'Leitmotiv'* of the Dragon in Wagner, or that of comparing wild and domesticated animals in Darwin. It is this which makes the exceptional range of research of a figure like Darwin mentally manageable. It also explains the many repetitions and (in)direct references to other parts of their work that both Wagner and Darwin introduce.

We believe we have captured the essence of this continuous state of inter-reference in the structure of the 'index and conceptual concordance' which forms Part two of this volume. The classification headings used in Part two reflect the themes and topics we detected in the marginalia. There is a relatively straightforward list of names of animals (under the category 'fauna', 'fa' in our code), plants (under 'flora', 'fl'), places (under 'geography', 'gr'), populations (under 'humankind', 'h'), and geological epochs (under 'time', 'ti'); and the document is rounded off with a list of people and works cited.[5]

Interwoven however with these name registers is a classified conceptual index, whose categories were as far as possible inducted cautiously from the annotations themselves, in order to reveal Darwin's *'Leitmotive'*. Work on transcribing the annotations in each book was accompanied by noting down the range of themes and topics in play. A brief cipher was developed for each of these topics, and these are recorded for each annotated book immediately beneath its title in Part one. The conceptual index was then prepared by taking *each individual annotation* and noting down the topics in play there, subcategorising as necessary within the broad categories previously developed, and adding a few new categories relating to CD's other 'layers of response'. The full list of the ciphers denoting these categories and subcategories is recorded on the sheet at the back of the book.

The 'concordance'-like aspect came in when we decided to enter each annotation into the index as a string of topic-ciphers, cross-referenced under each cipher in the string. Thus a statement involving the four ciphers A, B, C and D appears in the document four times, as A–B–C–D, B–A–C–D, C–A–B–D, and D–A–B–C. In this way Part two claims to have preserved intact the entire network of CD's thought.

The resulting document is rather large and very fine-grained. The structure of the entries under each topic-heading is as follows:

A [by itself] [pp.] 1 2 . . .
and [in combination] 3 4 5 6 . . .
infra:
A B C D 5
A C E 3 6
A D F G H 4

(etc).

This arrangement means that those wishing to do battle with the interplay in its full intensity can work from what one could call the 'infra'-structure . . . Those preferring to take their concepts so to speak lying down and one at a time can work with the same references as collected at the head of each entry.

The reader will no doubt be glad that we resisted the temptation to present the whole of Part two in the form of an irregularly branching tree. We did however fall for the idea of using coral- and tree-like diagrams to punctuate our presentation of the way our analysis of topics-in-play breaks the corpus of annotations down into their elementary strands, the *'Leitmotive'* of the Darwinian revolution. Thus those wishing to study the logical interactions of the *'Leitmotive'* as it were medium rare might do worse than start from these 'clustergrams'.

For our part, let us begin our presentation of these interactions at CD's own beginning:

"Diversity of organisms first condition of nature" (582a)

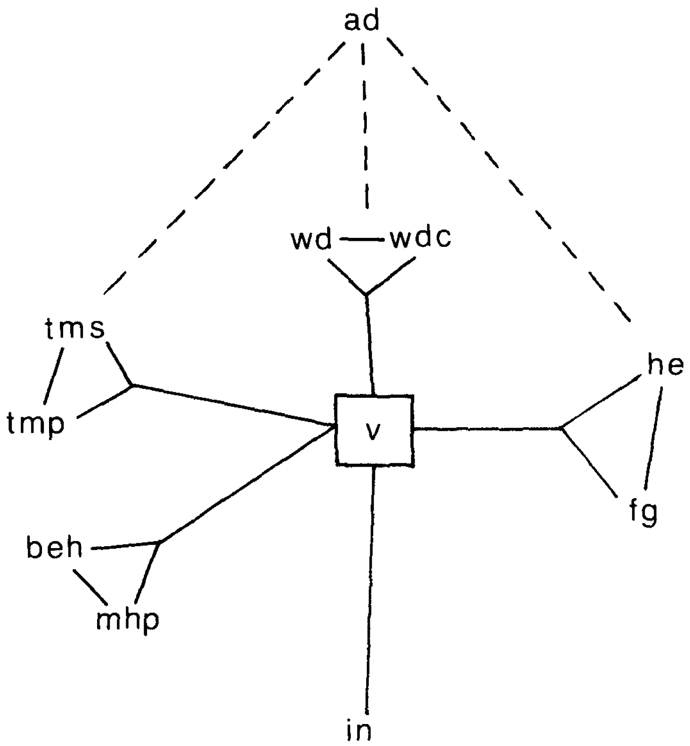
Variation ('v' in our code) just *is*, basic, unargued: "N.B When many pistils, then number variable [when many of any organs apt to be variable; Why. Hairs &c &c vertebrae of serpents" (253d–e). As we shall see further below, this emphasis on the reality of variation is essential to an understanding of the profound change in perspective away from Platonic notions that the 'Darwinian revolution' is all about. Real variation for CD plays something like the role played for Newton by the distribution of matter – the variable density of the universe, to make the analogy sharper.

All characteristics of organisms are subject to variation, the behaviour of animals and plants ('beh', 'mhp'), not just their physical structure: "Great diversity of instincts of Bees of same genus: variable in species also" (74e); "has seen axial twisting vary in same plant" (592c). Variation, as this last extract implies, distinguishes every organism at least minutely from its nearest relatives, and thus the primacy of variation brings the notion of the 'individual' ('in') to the fore: "as individuals differ in some respect . . . several must be experimented on.–" (267g). If, as Mayr claims, Darwin introduced "population thinking", then what matters for him is "variable populations consisting of uniquely different individuals".[6]

Variation occurs both in nature and under domestication, as the first two chapters of the *Origin* readily remind us; thus annotations on variation need to be related to those comparing the variations of wild with domesticated animals ('wd'): "tame cows more milk than wild: organs adapt themselves" (84g); or wild with cultivated plants ('wdc'): "old cultivated kinds tend to vary loose the hereditary quality of goodness" (595h).

This last extract pushes us onwards to take note of reproduction ('fg', for fertilisation and generation), and heredity or inheritance ('he'). If variation is Darwin's 'matter', then heredity, the passing of characters from parent to offspring which holds the chains of beings together, is perhaps his equivalent of Newton's gravity, the unexplained agency holding the chains of objects together. As we shall see below in mentioning pangenesis, Darwin never quite managed to make variation and heredity cohere conceptually – rather as it was beyond the Newtonian mind to conceive of matter and gravity as co-essential. In remarks which seem to show the shutters partly closing on the fully 'open' mind, he insists: "Contrast of adaptation and inheritance" (359f); or again: "Inheritance cannot be cause of variation has nothing to do with it" (514c) – an annotation which effectively sweeps all before it.

diagram 1



In this and the following diagrams we attempt to display some fraction of the densely woven threads of themes and topics constituting the bulk of the marginalia. The key to the topic-ciphers is to be found on the sheet at the back of the book. The diagrams summarise the text immediately preceding them.

"If all species varied equally all wd be in confusion" (430f)

But they don't: variation is itself variable. In the first place, this means that all is not in confusion – groupings of organisms are discernable, which we call varieties, races, species and higher groupings ('var', 'vc', 'sp', 'sph'); and this will refer us eventually to definition and classification, or systematics ('sy'). We have observed CD's pragmatism in these matters already; he pauses to praise Lamarck's scepticism: "good remark how arbitrary the distinction race and species is" (477h).

In the second place, the variability of variation has its own correlates, and brings into consideration the size of genera ('nos') and their wide geographical ranges ('gdw'): "but this is the very point that we are considering that large Families are wide rangers & most convertible [but that it is only a few which are wide rangers; the others changed into species] . . ." (115d–e). The whole time, we perceive in the background the fundamental questions of modification and speciation.

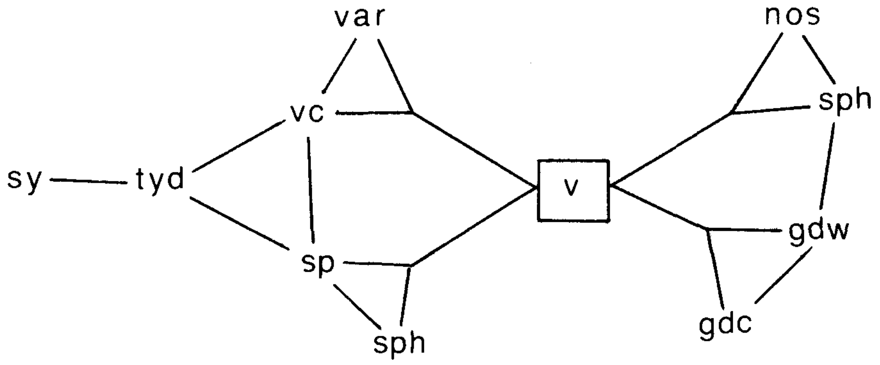


diagram 2

"Malthus and Franklin saw the law of increase in animals & Plants clearly" (562h)

The other basic condition of nature, again implied by reproduction, is 'increase' – our category 'no' for 'number' includes increase and decrease, and in its subdivisions wider concepts such as the 'amount of life'. Increase can be discerned directly in special cases like naturalisation ('gdn'), where introduced organisms ('gdi') at first increase swiftly: "Europe/U. States 716 in 26 years 600 miles of Lat. Many other good facts of rapidity/–" (124d); "Dr D. Owen says newly introduced Plants, first overrun the country & then become scarcer (Ask A. Gray)" (545e–f).

The finitude of any natural context means that there are checks on increase, principally struggle between organisms for relatively scarce resources such as food and space. The basic process of nature is thus increase checked by struggle ('oos'): "ie as far as food & climate (& enemies preoccupation by other species) ie conditions allow species & genera to range, so they will range . . ." (703e); "Beasts of prey destroyed others increase immensely, & drive others from habitation" (703f); "Every one of such species wd cover ground if no other species present: if rarity here is step to exclusion, then the greater importance of other organic beings is shown" (109d).

The relationships of organism to organism ('oo') are not all directly antagonistic; and these complexities constitute perhaps the central focus of Darwin's world-model. Without a clear understanding of the place of the relationships between organisms in the model, one cannot understand either the notion of selection or the Darwinian conception of evolution. CD likes Hooker's "Good remarks on strife of Plants" (404d); and ponders Haeckel's "good criticism on my theory of struggle for existence – says ought to be confined to struggle between organisms for same end – all other cases are dependance – misseltoe depends on apple" (356b–c). CD also painstakingly wrote notes concerning the symbiotic relationships between insects and pollen.

In the competition for resources, death and destruction do not only visit themselves upon the old; indeed, the fate of the variably vigorous young ('y') (including eggs 'fge', seeds 'fgs', etc.) is in an evolutionary sense more significant, because dead young do not mature to reproduce, and thus their variations cease to be inherited. "<*Young monkeys and humans*> Cutting teeth die from fever accompanying" (700a–b). Killing ('ook'), predation ('oopr'), and food ('fd') are also of the greatest significance: "Several Pigeons killed by Hawks are white or yellow vars" (430a). External agencies other than disease ('pat', for pathology) complete the picture – the direct action of conditions ('cc'), interwoven with the indirect action of conditions on food ('fd'): "Many wild Pigs die in Hard winters & in very dry summers" (39b, 40f) – some from harsh weather as such, but most from hunger.

These agencies act most tellingly on variations between closely allied individuals and/or species ('spc'), because these are the most near competitors for the same resources: "closely allied species exterminate each other" (629c).

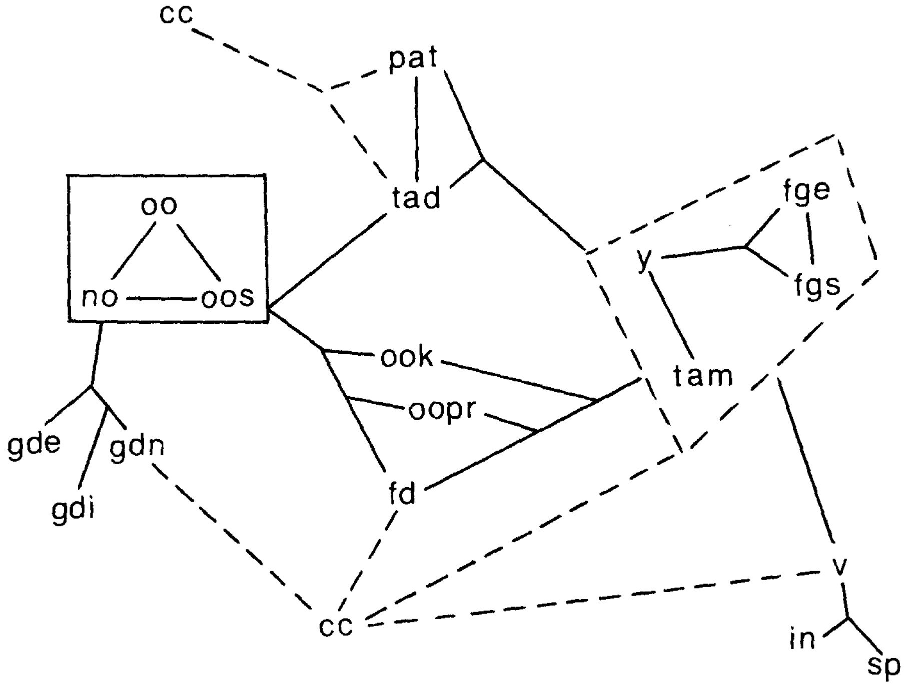


diagram 3

"selection wd act on a trifle" (448c)

The 'mere trifle' of the margins became the 'trifling characters' of chapter 4 of the *Origin,* which are on the contrary of the highest significance, as CD was fully aware in his comment, and in his collection of many details concerning variation in the colour, size and reproductive power of animals and plants ('tmp'). 'Natural selection' ('sl'), the heart of Darwin's vision, invites comparison with the effects and contexts of human selective intervention ('br', 'ooh'), and thus refers us back to the comparison of wild and domesticated productions: "such selection cd never apply to wild animals, as every parent must be adapted to same conditions" (509e–f).

One especially notable set of variations in not-so-trifling physical characters comprises sex differences ('sxd') and secondary sexual characters ('sxch'), leading to the topic of sexual selection ('ss'), and thence to the topics of breeding ('behb') and other social/sexual behaviour ('behs'). "Huia with Beaks different in 2 sexes & aid each other SS" (99b); "Sexual S. use of barb of fishes as exciting organs." "It is clear that characters sometimes go with sex – as sometimes polydactylism &c – Pouting & Wattle, & so if useful to one sex can be selected & returned <*does he mean 'retained'?*>" (520c–d). This last point, with its passing mention of deformity, reminds us that some naturally occurring sexual characters, developed in the struggle between members of one sex for the attention or possession of members of the other, invite comparison with artificially produced 'monsters' ('mn'): "a breed of <*silkworms of*> which females had much finer & not so monstrous wings as in the South" (690g–h).

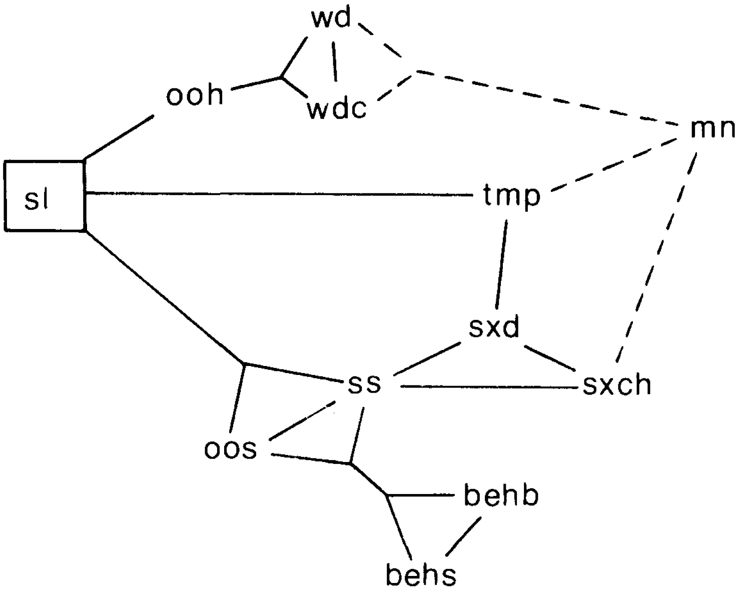


diagram 4

"I fancy not in time" (237f)

Au contraire, time is of the essence. Selective pressures act on an organism all its life – invoking our category of 'organic time and age' ('ta'): "Curious case of quick deterioration by neglect in Glamorgan Cattle showing some selection always going on" (885f). However as an evolutionary process, selection acts slowly over historical and geological time ('ti') – "Slow geological change important because domestication shows slowness" (88f–g) – struggle leading in the case of the less well adapted parts of populations to rarity and extinction ('ex'), especially again amongst closely-allied forms. "Perhaps a decrease or unfavourable conditions might destroy the intermediate vars . . ." (483c). Selection thus leads to divergence ('dv'); distinctions between populations, sharpened by extinction of intermediates ('ig') as against increase of those organisms in favourable stations ('gds'), permit us to speak of varieties, races, species, etc. This is the meaning of 'adaptation' ('ad') and 'descent with modification' ('ds', 'ts'). "So Porcupine & Echidna Orchis & Asclepias Explanation same, in some degree similar constitution acted on same causes, but in latter case selection comes into play very importantly – Both, however, derived from modified pair" (516g–h).

The existence of 'stations' is independently demonstrated by the observation that broadly speaking a particular spot can support a greater amount of life ('noa') the higher the number of species ('nos') involved. "Much life causes much decay makes strata &c &c & many stations. for different times of year will have species all times of year. good. . . There wd not be many species without stations; yes, how many species can be introduced . . . Creations not easy work thus also shown.–" (110d–f).

It is worthwhile pointing out that CD uses 'creations' here to mean 'natural formations' and does not mean to implicate the Almighty. But equally it is worth pointing out that the facts about naturalised introductions often outstripping endemic and indigenous forms ('gde') (because they are able to colonise untenanted stations) is an important argument against those Creationists ('cr') who maintain that God necessarily made each form perfectly fitted for its circumstances, "because there were localities fitted for simplest animals as well as the most complex. therefore some remained simple, if not created. The incidental good that one race performs to others proves adaptation in Universe." (533g).

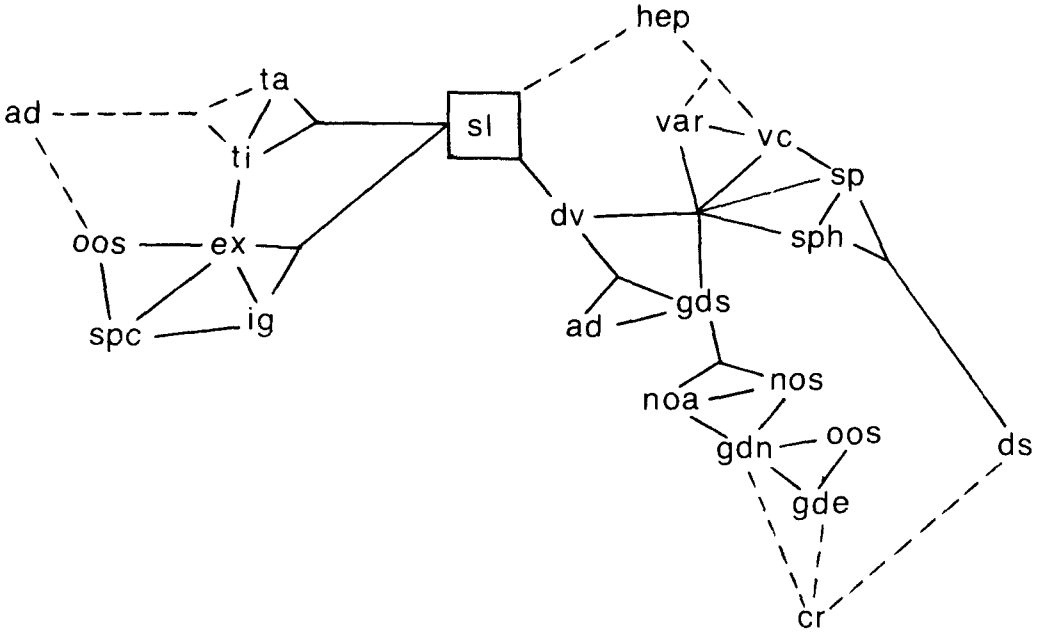


diagram 5

"It is important to observe no selection cd aid Horse in Falkland . . ."

Circumstances favouring selection include high numbers of individuals or species in any sizeable area ('gr') (because of competition); or isolation ('is') (because any variation in isolation is subject to changes specific to the location) ". . . or Horses in Paraguay except strength of constitution & breeding at diff time of year; but that cd be effected only if a little earlier or later was more favourable" (244f–g). "In this case *<isolation>* we have fewness of number, sudden change (in organism & external conditions), but on other hand not many to select from.– especially changing island.–" (88g).

Crossing also aids selection: it tends to add 'vigour' and fertility ('phyfl', for plant physiology, and 'f'), whilst inbreeding ('bri') tends to reduce it: "The converse of the law ill effects of breeding in & in holds in Plants.– namely crosses being more fertile –" (836c–d). The subject of crossing takes us also to those of reproduction and transmission ('het'): "one might fancy that in Ass crossed with Horse there is a greater potency of race, & that this potency is transmitted more by male in this case than in others. Niata cow transmits with more force than Bull – Pouter cock & Hen equally" (515d–e); also to the existence of sexes ('sx'), the symbiotic relationships between the habits of plants and animals, and so forth, which together account for a very sizeable number of annotations. "Nectar is sought eagerly by various insects . . . The real object . . . is to ensure occasional cross . . . Think of number of Insects which feed chief on Nectar!" (472e–h, part of an extended comment of considerable range and detail).

"It may be that lower plants have survived owing to having this advantage of separated sexes." (378h) – sex thus being a topic of capital importance in CD's work. It was related by him to variation in his pre-selection theory of evolution (see Kohn 1980).[7] It then remains connected with his lifelong preoccupation with generation (see Hodge in Kohn 1985), and continually surfaces in his mature reflections.

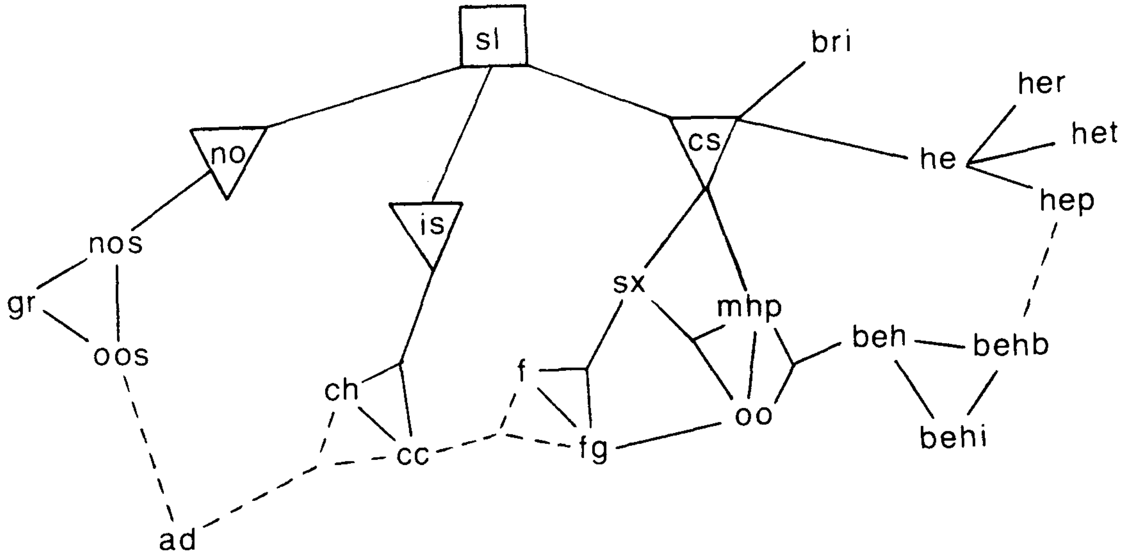


diagram 6

Annotations on crossing and its related concepts are frequently interwoven with those on hybrids ('hy') and the complex subject of relative fertility and sterility, distinguishing the possible mismatch between fully competent organs and instincts in an attempted cross from the possible inheritance by a hybrid of incompetent organs or instincts, or impaired vigour. "In Hybrids crossed with either parent, & thus assuming fertility & the ancestral form, yet fertility variable in such individuals . . . My point that plants often sterile & yet not unhealthy not touched on.–" (275g–h) "Q for instinct Migratory & Home Thrushes can be distinguished – probably do not cross" (45d); "Certain that Hybrid Canaries & Goldfinches & Siskins will breed inter se [but first young are weak]" (45c).

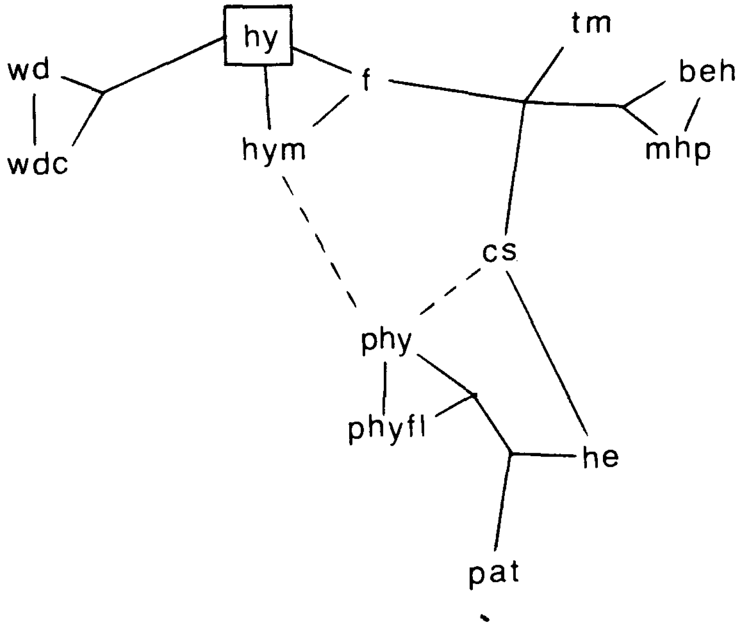


diagram 7

"Much intermediate variability" (632d)

Many annotations concern intermediate forms and gradations ('ig'). Again, as with variation, we are talking of gradations in behaviour as well as in structures – often interwoven: "on the exactly intermediate manner in which apes walk on Hands – good it might have been asked how cd there have been transition between hand & foot?" (97h).

The theory of gradual speciation by descent with modifications subject to selective pressure should in principle be able to show change ('ch') and transition over geological time, and grades of affinity ('af') between 'types' of organisms ('tma'). Embarrassingly, it is often unable to do so. This refers us back to extinction, and the fact that the record left by geological time is not perfect ('ir' for imperfection of record), so that the fossil remains ('fo') will never be able to reveal the whole story: "It is evident thus very few exceptions at whatever stage a genus or Family commences it is continued till it becomes extinct. This being capable of in fact strongest fact I turn against Imperfection of Record. Perhaps only shows no enormously long blank intervals" (673g–h). "How isolated would the elephant be without fossils . . . Mastodon older than Elephas & intermediate in structure of teeth" (649h–650e).

An important subtheme here is the 'succession of types' and their distribution ('gd'): "the succession of the genera . . . would be like showing connection in Geographical Range. so in space & time.– [I did not think of this, till beginning Gasteropods: easy to see to it in other orders] In Fish the law had better be tested by Families" (669g–670b). Another important subtheme in the study of the record is the relationship between shells ('sh'), deposition during subsidence ('se') (partly explaining the imperfection of the record) and thence to to the importance of geology generally ('geo'). It was probably geology that during the *Beagle* voyage had alerted CD to questions of distribution, through which he was able to connect geology with his early training in zoology (see

Sloan in Kohn 1985).[1] His own experience here was vital background to his reading of L. von Buch and the works of J.D. Hooker.

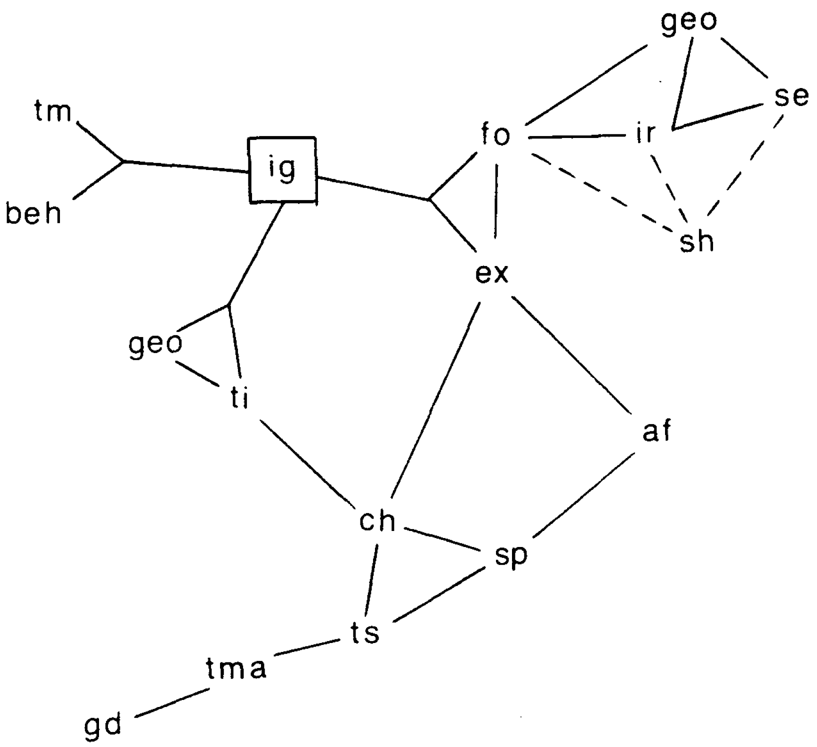


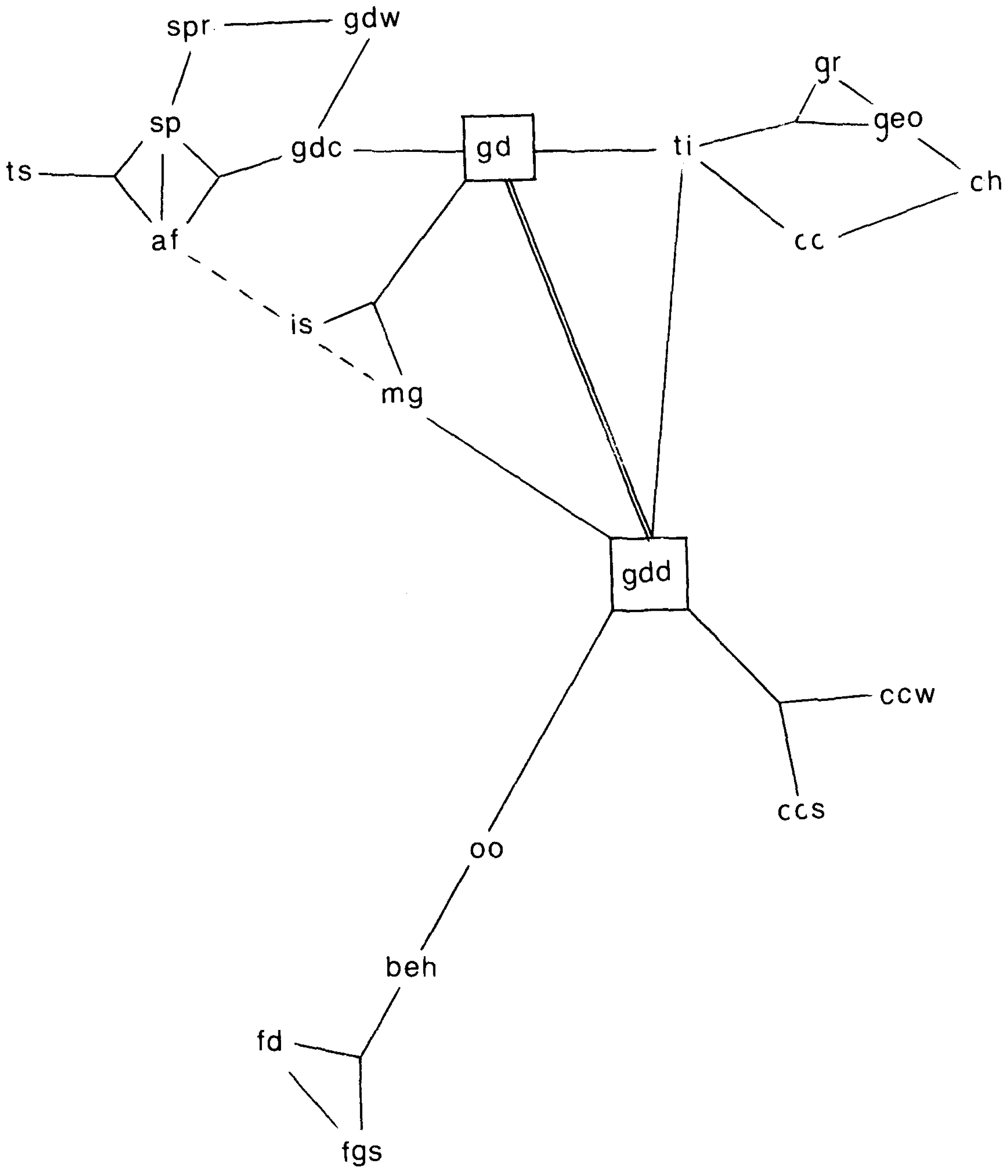
diagram 8

"This is case of animal being smaller northwards" (307d)

The topic of geographical distribution, both as a fact ('gd') and as a process ('gdd'), accounts for a large and very important set of annotations. The distribution of the representatives of common or widely-ranging forms ('spr', 'gdc', 'gdw') displays networks of affinities and reveals the results of geologically ancient community and subsequent transmutation. "Though we cannot explain same species common to Australia & Fuegoe yet the generic connection is in harmony" (391h); "It has always been my greatest fear that there has been so much modification since Glacial that it would upset view.– Some few genera may formerly have been mundane & Tropical & not now so.–" (398b–c). Distribution therefore refers us again to geological time and changes in conditions ('cc') and geographical features – a striking example is afforded in the comparison of glacial-period distribution and that of present-day mountain-tops.

By way of the subtheme of migration ('mg') and its near-opposite isolation ('is'), we are led to consider annotations on the manifold means of dispersion of forms ('gdd'): direct or indirect pressure from conditions; the action of wind and weather ('ccw') on seeds; the movement of animals and their capacity to carry seeds; sea-currents, icebergs ('ccs'), etc.

diagram 9


spr
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fgs

"Unknown cause prevents man cut in twain from reproducing . . ." (659h)

Halve a worm, and two may leave the scene of the accident; halve a higher animal, and the result is more likely to be two remnants of a very dead original – what does this imply about the principles governing growth and repair? It used to be said that Darwin did not know enough about physiology ('phy') and morphology ('tms') and was therefore left out of the mainstream of nineteenth-century biology (see E.S. Russell in his otherwise fundamental *Form and function*[8]). However, the marginalia do not bear this out. He seems to have been especially interested in many aspects of plant physiology ('phyfl'), since they bear on problems related to adaptation: "Movements become so firmly associated with certain external influences such as light & gravity that the latter suffices to cause the same process of growth or movement" (242e). A considerable number of annotations on physiology concern Helmholtz's consideration of the imperfection of the eye, directly relevant to CD's view of adaptations as non-perfect. Furthermore, there are a great number of annotations in Johannes Müller's *Elements of physiology*: "Plants going to sleep without the stimulus of darkness strongly analogous to a voluntary action from a diffused nervous system" (615a); "in playing a tune are the fingers connected with brain? or cerebellum" (615f–g).

Physiology leads back to heredity through the hypothesis of pangenesis and the gemmules ('pan'), whose existence CD postulated. This ill-fated hypothesis developed from CD's interest in the 'gemmules', stimulated in studying *Flustra* under the guidance of Robert Grant at Edinburgh (see Sloan and Hodge in Kohn 1985).[1] He retained this interest throughout his life; it surfaced particularly in *Variation*, and relates in the marginalia to pathology: "on same part attracting same substances, as in Tumours (Pangenesis)" (613h–a); embryology and growth ('em'): "Pangenesis on embryonic limb grafted & developing itself" (225f); cell theory ('ct') and physiology generally: "many gemmules may pass into cells – it certainly appeared in intestines & liver that fat passes into & out of cells" (822h); and monstrosity: "Double monsters Pang" (614a).

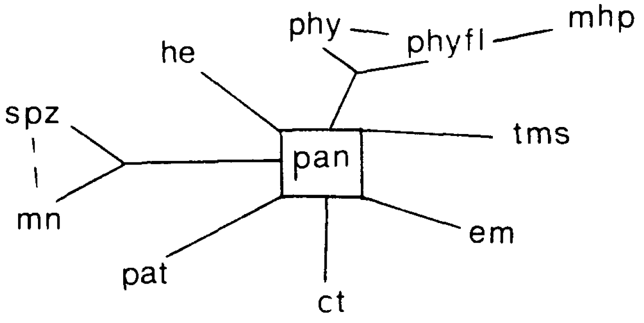

diagram 10

"intimate parallelism between the embryonic, zoological & teratological series" (313b)

Embryological resemblance reveals community of descent. Rudiments ('rd') do so also, by implying one-time use falling into disuse ('ud') through adaptive pressures. "Objects there might <*be*> 100,000 creations as well as one: I agree <*but*> then these would not have borne signs of common descent in homologies & embryology & rudimentary organs." (181g–h). Morphological resemblances and homologies ('hom') demonstrate the affinities of organisms within their 'types': "Tissues of all Vertebrates homologous" (623d).

The concept of descent with modification therefore provides the ground-rules for that holy grail the 'Natural System' – although CD is too cautious to suppose that he could put much flesh on that particular skeleton: "I will not specify any genealogies – much too little known at present" (164a). Although in the *Origin* Darwin avoided arguing directly against what Russell called 'transcendental morphology' (1916, pp. 103–12), the marginalia throw light on his rejection of Richard Owen's Platonic concept of the 'archetype': "I look at Owen's Archetypus as more than ideal, as a real representation as far as the most consummate skill & loftiest generalizations can represent the present forms of Vertebrata.– I follow him that there is a created archetype, *the parent of its class*" (655c; italics ours). This annotation focuses Darwin's philosophical emancipation from the Platonic *eidos*:

> According to [this] there are a number of fixed, unchangeable 'ideas' underlying the concept of variability, with the *eidos* (idea) being the only thing that is fixed and real, while the observed variability has no more reality than the shadows of an object on a cave wall . . . any commitment to an unchanging *eidos* precludes belief in descent with modifications. (Mayr, 1964, p. xix).[9]

For Darwin, the 'type' is simply the ancestor of evolving, living forms, and the emphasis is on variety, i.e. the diversity of life, rather than its unity as with Owen.

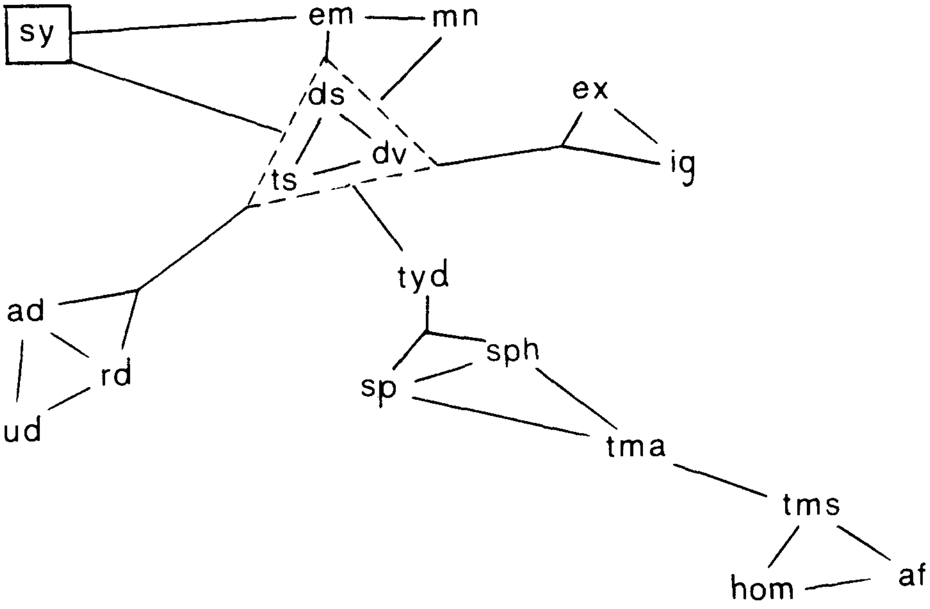

diagram 11

"How like my Book all this will be" (683e)

we catch Darwin musing quietly. The categories and subcategories of the index were, as we said before, inducted from our attempts to classify the annotations themselves. In our overview here of the principal categories and some of their logical interconnections, we have succeeded, as Darwinists and other conversants will have discerned, in recapitulating the ground-plan of the *Origin* (with some input from *Variation*) – i.e. in effect the ground-plan of the Big Species Book 'Natural Selection'.[10] Our categories are, it would therefore seem, CD's own to a very large extent. "This book is one long argument", CD says (*Origin*, p. 492): our argument was that CD's whole career is one long argument – and it is therefore useful corroboration that there are very few of our categories still left out in the cold, indicating that CD's reading, whether for 'Natural Selection' or not, did indeed continuously revolve around the same '*Leitmotive*'. This, as CD himself might have remarked, is our

"Key-note of Book" (424c)

One senses further confirmation of this in a slightly curious way from those annotations in which CD collects material for particular chapters or volumes of his own publications: they all look exactly the same. He says, as it might be, 'use in ch. 5' – but ch. 5 of what? These notes, in not differentiating one book from another, suggest that the manner in which CD *wrote* coheres very closely with the manner in which he *read* – like a practised vintner sampling continually and laying down the selected vintages to support main courses concocted maybe years later. It is as if he experienced his publications as interim extracts from a single, endless conversation with nature.

Those of our index categories not much mentioned in the above overview in fact fall happily into just three groupings: a) reflecting CD's interest in geology and related topics; b) reflecting the reading which surfaced in *Descent* and *Expression*; and c) reflecting our own attempt to report CD's critical, reflective and other 'asides'. Our last diagram thus completes the analysis:

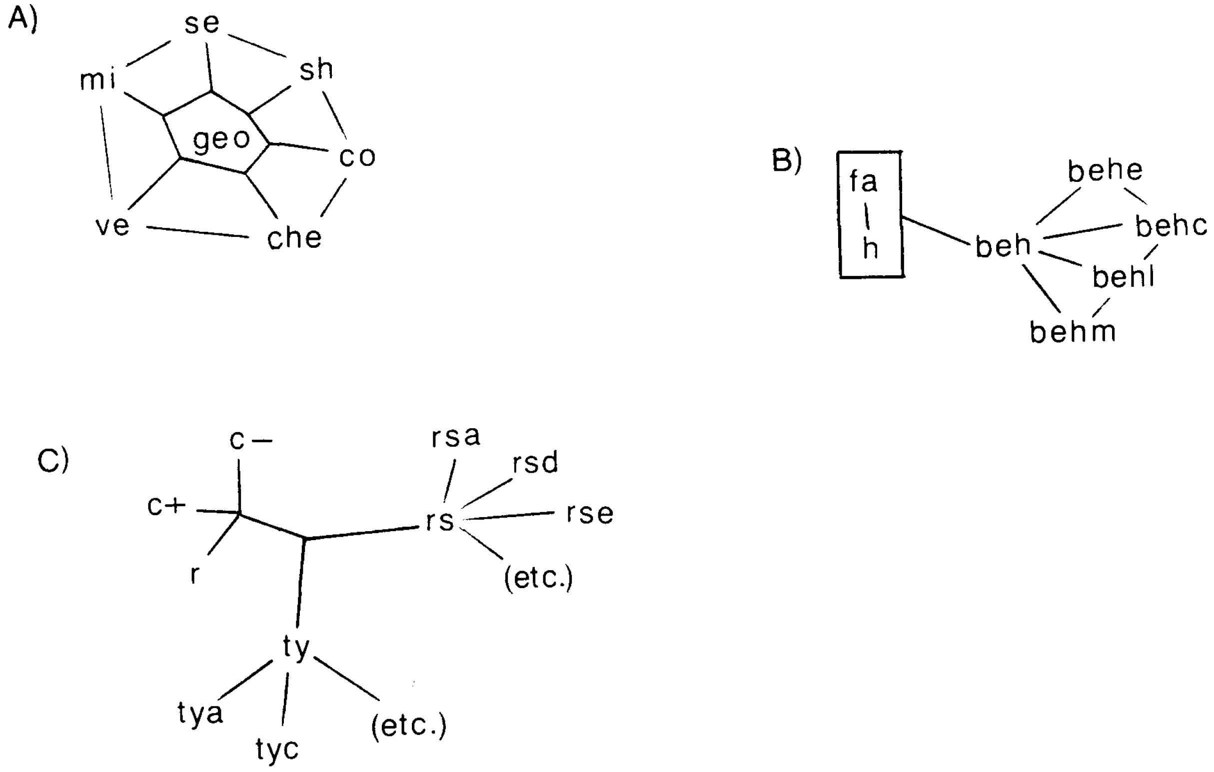

diagram 12 a.b.c

Mention just now of *Descent* and *Expression* provides a cue for us to add a few necessary words about the marginalia concerning humankind. Although there are many annotations around this topic, it cannot be said that CD was primarily interested in ethnology or anthropology as such. Their relevance is very frequently to other matters, principally variation and sex (indeed the greater part of *Descent* is about sexual selection). Humankind is just another test-case for the great Theory: "I am beginning to conclude that it is more difficult to account for small variations of man where there is no adaptation than great differences, where adaptation. Consider cases of Rabbits, mere law of growth . . . Nothing is more odd than similarity of Fuegians and Brazilians. Why puma shd range continent invaried and Monkeys differ in every province . . . I may contrast Man with Monkeys, for on my theory, the Monkeys have varied" (604a–c). Another example is provided by Mackintosh's *Ethical philosophy*; here CD relates conscience to habit, both in man and animals. The moral sense is seen from the viewpoint of what we would call 'animal behaviour' – for example the love of parents for their children is related to adaptation and selection. Such an attitude might be of considerable interest to sociobiologists.

It is instructive to see how CD used the great interplay of themes even in his so-called minor books. In *Contrivances* (1862) CD started with a specific problem, that of pollination. Consideration of this quickly leads to adaptation, and the vast theme of the relationship of organism to organism (insects and orchids). In the background lurk individual variation and the action of selection, within the framework of evolutionary transmutation, the major theoretical problem in play.

The case of worms is even more interesting: one might marvel that someone whose thought had encompassed the most broad-ranging and revolutionary theory in the history of his science should end on such an apparent low – *Vegetable mould* (1881). But even here the *'Leitmotive'* are fully functioning. CD began observing the action of worms in 1827, 54 years prior to his publication, and continued working on them throughout his life (see Gould's revealing foreword to the 1985 Chicago reprint). The book is based on the relationship of organism to organism (worms and leaves), and touches on individual variation in behaviour. Last but not least, the action of the worm totally alters the face of the earth through small continuous changes (gradualism): we see the result of the process but scarcely the process itself taking place (geological history), on analogy with an annotation made many years earlier: "The glacier is a stream, though one does not see the streaming" (630d).

(iv) influence of particular authors[11]

a) CD as part of the British tradition

Darwin's theory was an ecological one. The views of both Wallace and Darwin sprang from the established natural science tradition, rather than the relatively new laboratory biology. The still-flourishing tradition had its roots in the works of Ray and Willughby and reached its height immediately before and during Darwin's youth – such authors as Kirby, Spence, Fleming, Strickland, Henslow, Blyth, Bicheno, Westwood, Jenyns and Roscoe were familiar to and influential upon the young Darwin. Darwin's approach focuses on instincts (like Fleming and Blyth) and the relationship of organism to organism (like Fleming, Westwood and Strickland), and therefore tends to be an ecological theory in the manner of Strickland.[12] In Ray's *Wisdom of God* Darwin discerned the ecological approach he made his own in the *Origin*; in Ray we find annotations concerning behaviour, adaptation, sex, morphology and the relationship of organism to organism.

The relationship between instinct and acquisition by habit is the main topic to be found in Kirby and Spence's *Entomology*; here Darwin focused on the problem of neuter insects which surfaces in the *Origin*: "one may suppose that originally many queens were ordinarily thus reared and a few workers and the instinct is thus retained" (454g–h). Much is to be found on reason in animals as related to instinct, along with annotations on the struggle for existence, selection, speciation, and distribution.

Fleming's *Philosophy of zoology* also prompted CD to analyse instinct: "it is strange according to my theory that habit which results often of intellectual processes . . . is related to instinct, which analogy of plants leads one to believe to exist, independently of intellect" (232b–c); and "The individual who by long intellectual study acquires a habit, & can perform action almost instinctively, does, that in his life time, which successive generations do in acquiring true instinct:– instinct is a habit of generations,– each step in each generation, being intellectual" (231h–232a) – where CD seems to leave a loophole for backdoor Lamarckism.

Our emphasis on the influence of British natural science requires a mention of Darwin's reaction to Natural Theology, and especially its central tenet of perfect adaptation. CD read and annotated Brougham's *Dissertation on natural theology*; but here the annotations mainly concern animal behaviour and pigeon-breeding. It is in Henslow's *Botany* that he distances himself definitively from 'perfect adaptation': "People constantly speak about every organism being perfectly adapted to circumstances, if so how can there be a rare species breeding power being efficient (food not sufficiently abundant is answer" (369d).

It is clear from the quality of annotation that Lyell was of paramount importance to Darwin's development; in fact Lyell is the most heavily annotated author. Other British authors who had a significant impact on Darwin include Blyth, Yarrell, Blackwall, Newman, Newport, Jenyns, Westwood and of course Henslow; and he had a lot of time for books on pigeon-breeding, whether British or continental.

b) CD and continental traditions

By observing the manner of annotation, we may deduce that CD was confident with French, less so but still conversant with German, and occasionally read some Italian and Spanish.

Only a few annotations are found in Cuvier's *Anatomie comparée*, and all of them concern morphology. There are a few more in *Le Règne animal*, concerning behaviour, sex, speciation, morphology and variation. Darwin also possessed *The theory of the earth* in English. Mentions of Cuvier are often marked in other people's books; but to judge by the degree and quality of annotation Isidore Geoffroy St Hilaire was much more important to him than Cuvier, though it seems something of a 'love–hate' relationship: "Believed in change of species . . . 'Modificateurs ambiants' sur l'organisme'. Yes this is his belief . . . Introduce in Preface" (301h–302a); however: "Remarks on small isld having small mammals . . . forgets Java & Sumatra! I contradict his statements flat" (302d).

CD annotated Milne-Edwards' *Histoire des crustacées*, accusing him in effect of creationism: "How explains this, except by single creations" (581e). On the same page there is an important annotation concerning isolation: "Without regard to anything else – make a Barrier and you will have different species on opposite sides" (581f). Other Milne-

Edwards marginalia, mainly on issues connected with classification, are found in *Introduction à la zoologie générale*: "Law of 'economy of nature' 'sober in innovations' has not recourse to any new creation of organ" (582a–b); "on value of characters in classification" (582g); and "Best way of putting superiority.– though each perfectly (?) (Can young be said to be perfectly?) adapted to conditions" (583a).

As far as Lamarck is concerned, his *Histoire naturelle des animaux sans vertèbres* bears very few annotations. More are found in the *Philosophie zoologique*. Darwin's relationship with Lamarck is very complex, and one should not take the disparaging remarks we partly quoted before as Darwin's only view – ". . . so few facts . . . very poor and useless book" (477a/478a). Basically Darwin charged Lamarck with failure to understand extinction and geographical distribution: "Therefore every fossil species direct father of existing analogies and no extinction except through man!– [Hence cause of innumerable errors in Lamarck]" (478g–h); "Does not pursue this into Geographical Distribution" (480c); but echoes our remark above: "The case of acquired hereditary instincts shows that instincts can be acquired" (478d).

Other important French-language authors are C.L. Bonaparte, especially on the connection between distribution and the struggle for existence; and F. Huber on insect instinct in *Nouvelles observations sur les abeilles*.

The annotations in German-language books are in the main much closer to translation/paraphrase. Gärtner, Kölreuter, Ehrenberg, Haeckel and others are well represented in his library. Gärtner's *Kenntnis der Befruchtung* is very heavily annotated on variation, fertility, hybrids, and the relation of organism to organism, very often interrelated. Many annotations concern contabescence and refer to Kölreuter: "most important compare Kölreuter experiments and Gaertner's" (253b). Some markings concern dichogamy as seen by Sprengel and Delpino.

Darwin read and annotated Haeckel's *Schöpfungsgeschichte*, liking its stance enough to mark out passages "good – for the beginning of my Book" (358d); interestingly, there is no annotational evidence that CD thought Haeckel had gone over the top with his 'phylogenies' – rather CD appears keen to play the same game, despite his public caution about 'specifying genealogies': "I shd prefer supposing that both classes descended from forms more intermediate than Dinosaurs & Solenhofen Birds" (359d–e). Incidentally, Haeckel kept sending copies of his publications to CD, who did not pay many of them much attention. Very often in their inscriptions to Darwin in their books German scientists, including Haeckel himself, wrote 'Sir' or 'Professor', not being able to believe that someone as distinguished as Darwin would not be one or the other – or both.

It is interesting too that there is no annotational evidence that Darwin read von Baer's *Entwickelungsgeschichte*, which is not even in his list of 'Books to read' (see Vorzimmer[13]). But he certainly read Huxley's translation of the fundamental fifth *Scholium*. Other German-language authors of some importance to CD include Nägeli, Nathusius and Rütimeyer.

The marginalia suggest that two authors who had an enormous impact on CD were Alphonse de Candolle and Alexander Humboldt.

"I must read some Book on geograph distrib of insects or of one great class" (683e–f), CD instructed himself reading Prichard; it seems that that book turned out to be Candolle's *Géographie botanique*, probably the most densely annotated work in the whole library, which seems to have been the catalyst for much thinking around distribution, the struggle for existence, isolation, and consequently selection. The annotations in Candolle are difficult, and this is because Candolle is perhaps the only major work in whose company CD is for a while noticeably confused and uncertain at a (quasi)-theoretical level; "A species might abound in some spot and yet be rare over all England, but is this so?" (109g); "Here isolation clearly comes into play; but this does not account for smaller range of plants within Cape District." (118g–h); "As far as I can see (which is very little) isolation of area seems to have little to do with confinement of species!! In this family" (118h); "I never shd look at it under this light; yet perhaps agree with Herbert's views. When there only few species, we must suppose either others extinct, or then few only are yet introduced" (119f); "This bears on few species inhabiting 2 areas, where there are many species – does it not come to this, that widely extended species break into varieties and these become species with confined ranges.– anyhow this shows how complicated a question it is" (120b).

By volume 2 he is beginning to recover his usual slightly declamatory poise: "England formerly connected, hence most plants which could live in England wd have immigrated. If any species had been introduced by Birds within the last century, & was not mentioned by old Books,[14] it wd have been thought to have been overlooked.–" (134h–135a); "The more I reflect the more I come to conclusion that antiquity of man one of the most important elements in history of variation.–" (139b).

Finally CD succeeds in 'trumping' Candolle by reference to his own higher-theoretical insights: "He always leaves out struggle with other species.–" (142d); "He looks at extinction as due all to Deluges &c!!" (143h). Candolle has approached the 'right' problems, but lacks the focal concept in the understanding of speciation: without the idea of selection it is impossible to make sense of variation, extinction, isolation, distribution and the struggle for existence as forming a single complex nexus. Thus, as we quoted before: "(always this) he has not the Key.–" (145b).

Humboldt, especially in the *Personal narrative,* got CD thinking about distribution and the relation of organism to organism in the context of isolation, extinction and the breeding of wild and domesticated animals: "Camels abundant in Fortaventura and vegetation different from . . . other Islands – NB Numerous wild asses formerly in Fortaventura" (416f). If Humboldt's almost ecstatic tone excited CD, it seems to have been towards envisioning a raw elementalism incompatible with Humboldt's Panglossian optimism, his falsely a priori harmonious world where adaptations are basically perfect. On the contrary, the raw elementalism is hardly even hidden below the surface: "to show how animals prey on each other – what a 'positive' check . . . Think of death only in Terrestrial Vertebrates . . . Smaller Carnivora – Hawks – what hourly carnage in the magnificent calm picture of Tropical forests . . . Probably two or three hundred thousand Jaguars in S. America What Slaughter! Daily – & as many Pumas" (418f–g).

Thus we end our selection from the marginalia on a rather bloodthirsty note . . .

coda

The basic objective of publishing this 'marginal' material is to contribute to the reconstruction of Charles Darwin's place in his historical and scientific context, and so to facilitate a clear understanding of his importance for modern science. A principal bonus of these volumes will be an enormous increase in the accessibility of CD's primary, unmodulated thinking.

As such the *Marginalia* are expected to be of interest not only to Darwin scholars, but also to historians of ideas, to biologists, psychologists, naturalists and evolutionists alike. The marginalia show Darwin not only 'alone', but also as part of his historical and social milieu, and as a major protagonist at a vital stage in the development of science. In showing us the material Darwin chose to use or discard, and in recording his assessments of other authors, the marginalia reveal more candidly than any other source the nature of the influences upon his thought, and the methods he used in the formulation and application of his theory.

CD himself was well aware of the potential future importance of the annotations he was making in his personal library. For example, he makes certain, in a letter written to his wife Emma, to prescribe that in the event of his death 'some competent person' should receive 'all my Books on Natural History, which are either scored or have references at the end to pages, begging him carefully to look over & consider such passages, as actually bearing or by possibility bearing' on the subject of the sketch of his species theory, which he had just finished (5 July 1844), when the question of its publication in book form should arise.[15]

We make no claim to have taken up that challenge as laid down by the Master himself; but it is at least pleasing to feel that he would not have found our exposure of his 'private' scribblings unduly intrusive.

notes

1. Kohn, D. (ed.) *The Darwinian heritage* Princeton 1985
(chapters quoted:
Browne, J., 'Darwin and the expression of the emotions'
Hodge, M.J.S., 'Darwin as a lifelong generation theorist'
Sloan, P.R., 'Darwin's invertebrate program 1826–36: preconditions for transformism').
2. Barrett, P.H., Gautrey, P.J., Herbert, S., Kohn, D., Smith, S., *Charles Darwin's notebooks 1836–1844* (Cambridge 1987); see Notebook D (especially Inside Front Cover) and Notebook E (especially p. 58).
3. Di Gregorio, M.A. Order or process of nature: Huxley's and Darwin's different approaches to natural sciences *Hist. Phil. Life Sci.* 3 (1981): 217–42.
4. Burkhardt, F. and Smith, S. (eds) *The correspondence of Charles Darwin* (Cambridge 1985–).
5. The University Computer has occasionally had ideas of its own – curious rather than disruptive, fortunately – on where to put items in its sorting of the name registers: the ghost in the machine had to leave its mark somewhere, one supposes. The ghost is clearly no fan of Darwinism, to judge by the capricious appearance of the gooseberry among the place names. This is a genuine accident; we only wish we had thought of it ourselves, in its implication that we do after all materialise under bushes of that ilk, rather than by the agencies of evolution.
6. Mayr, E. *The growth of biological thought* Cambridge, Mass. 1982.
7. Kohn, D. Theories to work by: rejected theories, reproduction and Darwin's path to natural selection *Studies in the history of biology* 4 (1980): 67–170.
8. Russell, E.S. *Form and function* London 1916.
9. Mayr, E. 'Introduction' *On the origin of species* (facsimile of first edition) Cambridge, Mass. 1964.
10. Stauffer, R.C. (ed.) *Charles Darwin's Natural Selection* Cambridge 1975.
11. Parts of this introduction, especially this section, are based on a full reworking of Di Gregorio, M.A. Unveiling Darwin's roots *Archives of natural history* 13 (1987): 313–24.
12. Di Gregorio, M.A. Hugh Edwin Strickland (1811–53) on affinities and analogies: or, the case of the missing key *Ideas and production* 7 (1987): 35–50.
13. Vorzimmer, P.J. The Darwin reading notebooks 1838–1860 *J. Hist. Biol.* 10 (1977): 107–53.
14. "old Books": CD had a lively interest in such sources as the Bible, 'classical writers', books on ancient Egypt, and so forth, for information on the antiquity of varieties.
15. Burkhardt, F. and Smith, S. (eds) *The correspondence of Charles Darwin* vol. 3 (Cambridge 1987), pp. 43–5.

PART ONE

CATALOGUE AND TRANSCRIPTION

"Upon the whole nothing can be inferred from this list" (134a)

table of titles

"You may shorten name" (342a)
Thank you.

Full details of author, title, publication and current location are recorded with each entry in the text. These details also record if the book bears CD's autograph, or was inscribed by whomever gave it to CD; if it was in CD's possession before and/or during the *Beagle* voyage; and if the book contains uncut pages.

Crawfurd *Malay grammar and dictionary* 1852	*172*
Croll *Climate and time* 1875	*173*
Crookes *Psychic force* 1872	
Cunningham *Strait of Magellan* 1871	
Curtis *The botanical magazine* 1793	
Cuvier *Essay on the theory of the earth* 1827	
Cuvier *Leçons d'anatomie comparée* 1799–1805	*174*
Cuvier *Le règne animal* 1829	*175*
– *Cyclopaedia of anatomy and physiology* 1859	*176*
Dallas *Animal kingdom* n.d.	*178*
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Dandolo *Silk-worms* 1825	
Danielssen & Koren *Zoologi: Gephyrea* 1881	
Dareste *Monstruosités* 1877	
Darwin, Charles *translations of his works* various	
Darwin, C. *Zoology of the Beagle voyage* 1840–42	*182*
Darwin, Erasmus *The botanic garden* 1791	*183*
Darwin, E. *The botanic garden* part 2 vol. 2 1789	*184*
Darwin, E. *Phytologia* 1800	
Darwin, E. *Temple of nature* 1803	*185*
Darwin, E. *Zoonomia* 1794–96	
Darwin, Robert Waring *Ocular spectra* 1786	*187*
Darwin, R.W. *Principia botanica* 1810	
Daubeny *Volcanos* 1826	
Daubrée *Roches cristallines* 1860	*188*
Dawkins *Cave hunting* 1874	
Dawson, James *Australian aborigines* 1881	
Dawson, John *Fossil plants of Canada* 1871	
Defrance *Tableau des corps organisés fossiles* 1824	
De la Beche *Theoretical geology* 1834	
De la Beche *Annals of Mines selection* 1824	*189*
Delage *Crustacés édriophthalmes marins* 1881	*190*
Delamer (Dixon) *Pigeons and rabbits* 1854	
Delgado *Terreno siluriano no baixo alemtejo* 1876	
Delpino *Dicogamia* 1868–74	*191*
Denton *Is Darwin right?* 1881	*192*
– *Descriptive and illustrated catalogue of Mammalia and Aves* 1845	
Desmarest *Mammalogie* 1820	
Devay *Mariages consanguins* 1862	*194*
– *Dictionary of chemistry (Ure)* 1823	*195*
– *Dictionary of chemistry (Watts)* 1871–72	
– *English dictionary* 1770	*196*
– *Spanish–English dictionary* 1831	
– *Dictionnaire classique d'histoire naturelle* 1822–31	
– *Dictionnaire raisonnée des termes usités dans les sciences naturelles* 1834	*197*
– *Dictionnaire des sciences naturelles: Planches* 1830	*198*
Dillwyn *Recent shells* 1817	
Dippel *Das Microskop* 1872	*199*
Dixie *Across Patagonia* 1880	
Dixon, Edmund *Dovecote and aviary* 1851	
Dixon, E. *Ornamental and domestic poultry* 1848	*201*
Dixon, Frederick *Tertiary and cretaceous Sussex* 1850	*203*
Dobell *Vestiges of disease* 1861	
Dodel *Ulotrix zonata* 1876	
Dodel *Die neuere Schöpfungsgeschichte* 1875	
Doherty *Philosophie organique* 1881	*204*
Dohrn *Pantopoda* 1881	
Dohrn *Arthropoden* 1870	
Dolfuss *Géologie transformiste* 1874	
– *Domestic medicine* 1872	
Donders *The eye* 1864	
Donn *Hortus Cantabrigiensis* 1823	
Donnegan *Greek–English lexicon* 1837	
Douglas & Scott *The British Hemiptera* 1865	
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Drayson *The last glacial epoch* 1873	

Dreher *Der Darwinismus* 1877	
Drouët *Mollusques marins des Açores* 1858	*209*
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Dub *Lehre Darwin's* 1870	
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Duchenne *Physiologie humaine* 1862	
Dufrénoy & Élie de Beaumont *Description géologique de la France* 1836	*210*
Duhamel du Monceau *Traité des arbres* 1755	*214*
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Duncan, Andrew *Dispensatory* 1826	
Duncan, James *Fecundity* 1871	*215*
Duncan, John *Analogies of organized beings* 1831	
Dupont *L'Homme* 1871	
Du Prel *der Kampf ums Dasein* 1874	
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Du Prel *Psychologie der Lyrik* 1880	
Durand *Physiologie philosophique* 1866	
Durand *Les Origines animales de l'homme* 1871	
Dutrochet *Histoire anatomique et physiologique* 1837	*216*
Duval *Histoire du pêcher* 1850	
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Ecker *Anatomie des Frosches* 1864–82	
Edgeworth *Pollen* 1877	
Ehrenberg *Mikrogeologische Studien* 1873	
Ehrenberg *Das kleinste Leben im Weltmeer* 1844	
Eichwald *Geognostisch-palaeontologische Bemerkungen* 1871	*220*
Eimer *Maureidechse* 1881	
Élie de Beaumont *Géologie pratique* 1848	
Emery *Fierasfer* 1880	
– *Encyclopaedie der Naturwissenschaften* 1879–82	
Engelmann *Bibliotheca historico-naturalis* 1846	*221*
– *Enten, Schwanen und Gänsezucht* 1828	
Ercolani *Nouve ricerche sulla Placenta* 1880	
Ercolani *Unità della placenta* 1877	*222*
Erichsen *Surgery* 1869	
Ernest *Dictionary, Graecium lexicon* 1816	
Errera *Fécondation des fleurs* 1878	
Eschricht, Reinhardt & Lilljeborg *Cetacea* 1866	
Eschwege *Gebirgskunde Brasiliens* 1832	
Espinas *Sociétés animales* 1877	*223*
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Eyton *Osteologia avium* 1867	
Farbre *Souvenirs entomologiques* 1879	*225*
Faivre *Variabilité* 1868	
Falconer *Palaeontological memoirs* 1868	*226*
Falconer *Teak forests of Tenasserim* 1852	
Farrar *Language* 1865	
– *Farrier and naturalist* 1828–30	
– *Fauna und Flora des Golfes von Neapel* 1880–81	*227*
Fayrer *Bengal tiger* 1875	
Fenwick *Medical diagnosis* 1871	
Ferguson *Rare and prize poultry* 1854	
Ferrière *Darwinisme* 1872 two copies	*229*
Ferris *Origin of species* 1871	
Fichte *Die Seelenfortdauer* 1867	
Fiske *Darwinism* 1879	
Fiske *Cosmic philosophy* 1874	
Fitton *Geology in England* 1833	
Fitzgerald *Australian orchids* 1877	
Fitzroy & King *Adventure and Beagle voyages* 1839	*230*
Fleming *History of British animals* 1828	*231*
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Flourens *Longévité humaine* 1855	
Flourens *Instinct et intelligence* 1845	*235*
Flower *Osteology and dentition of vertebrated animals* 1879	*236*

Heer *Flora fossilis artica* 1875	
Heer *Flora fossilis Helvetiae* 1876–77	
Heer *Miocene Flora und Fauna Spitzbergens* 1870	
Heer *Le Monde primitif de la Suisse* 1872	
Heer *Pays tertiaire* 1861	
Heer *Klima des Tertiärländes* 1860	
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Heller *Darwin und das Darwinismus* 1869	
Helmholtz *Popular lectures* 1873	
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Herschel, J.F.W. *Scientific enquiry* 1849	
Herschel, J.F.W. *Natural philosophy* 1831	
Herschel, J.F.W. *Astronomy* 1833	
Herschel, Mrs John *Caroline Herschel* 1876	
Hertwig *Zahnsystem der Amphibien* 1874	
Hervey-Saint-Denis *Agriculture et horticulture des Chinois* 1850	
Hewson *Works* 1846	*378*
Heyworth *Man* 1866	
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Higginson *Out-door papers* 1871	
Hildebrand *Geschlechter-Vertheilung bei den Pflanzen* 1867	
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Hoek *Zoology of Challenger voyage* 1881	
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Holland *Chapters on mental physiology* 1852	
Holland *Chapters on mental physiology* 2nd edn 1858	*386*
Holland *Scientific and other subjects* 1862	
Holland *Medical notes and reflections* 1839	
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Holub *South Africa* 1881	
Holub & Pelzen *Ornithologie Südafrikas* 1882	
Hooke *Micrographia* 1667	
Hooker, Joseph *Botany* 1876	
Hooker, J. *Flora antarctica* 1844–47	
Hooker, J. *Himalayan journals* 1854	*392*
Hooker, J. *Introductory essay, flora of New Zealand* 1853	*393*
Hooker, J. *Geological survey of Great Britain* n.d.	
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Hooker, J. & Ball *Marocco and the Great Atlas* 1878	*403*
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Hope *Coleopterist's manual* 1837 *409*
Hopkins *Geology and terretrial magnetism* 1844
Horner *Alluvial Egypt* 1858
Houghton *Natural history of the ancients* n.d.
House of Commons *Wild birds' protection* 1873
Hovelacque *Notre ancêtre* 1878
Howorth *Mongols* 1876
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Wollaston *Variation* 1856	*876*
Wolstein *Paaren und Verpaaren* 1836	*879*
Woodward *Shells* 1851–56	
Wright *Darwinism* 1871	*882*
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Wundt *Physiologische Psychologie* 1880	
Wundt *Physiologie humaine* 1872	
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Yarrell *British fishes* 1836	*883*
Yarrell *British birds* 1839	
Youatt *Cattle* 1834	*885*
Youatt *The dog* 1845	*888*
Youatt *The pig* 1860	*889*
Youatt *Sheep* 1837	*890*
Young *Natural philosophy* 1807	*895*
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Zuckerkandl *Reise der Novara* 1875	

* The annotations in Rolle were reconstructed from Martin and Uschmann *Friedrich Rolle 1827–87, ein Vorkämpfer neuen biologischen Denkens in Deutschland* Leipzig 1969. CD's copy of Rolle seems to have disappeared.

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beh, che, fg, h, he, pat, phy, sx, t, ta, ts, y

NB1 Origin of shame & blushing, fear & anger mixed??
NB2 It requires much attention to observe in self an habitual action.
Nothing for Species Book

vi *25m, 26m* **viii** *14–16m* **2** *21–22m/21u "organs | mind"/22u "external | brain"* **7** *wt/wt*♦ It is clearly common to animals, the dogs ♣ does not doubt, that the smell of a partridge shows partridge there. XX |? *3–6m/w* X Is it with animals? Yes. V. p.8 *wb* XX His master taking a gun, is to the dog a law of nature that he is going out shooting.– he learns this by his own experience.– he learns instinctively, that ♣ |? **8** *wt* What is cause of difference.– if dogs sees take up hat, it is long before he knows this means to go out of doors.– Association & Causation united somehow. *7–11m/w* This applies to animals *wb* as simple animals must also have causation the conviction of truth may be owing to ♣ simple causes followed by uniform effects, only affecting such beings. **9** *4–6m* **10** *1–4m* **12** *24–27m* **13** *4–5m, 8–13w* Hope love joy sorrow *8–11m/w* sublime terrible pleasure of imagination **14** *19–29m/w* do not understand *wb* Is fear active or passive emotion? **22** *4–6m/x/u "wills", wb* How far can these be simplefied? **26** *2–5m* **27** *8–11m/w* functions of the nervous system, as gravitation of matter. *17–23m/22x, 19–20m/w* 1/2 instincts *wb* & by these laws, such as of gravity, of crystalline arrangement of particles **28** *1–10m/1"...*/*1–10m, wb* By Materialism, I mean, merely the intimate connection of kind of thought, with form of brain.– like, kind of attraction with nature of element **29** *wt* Here organ produces life! – & life & thought intimately related *3–19m, 19–22w* ?will my theory apply here? *27w* z Generation! *28u "functions", wb* Elective Affinity is a thing not analogous to others qualities of bodies, yet is supposed property of ♣ matter, so would I say thought was – from analogy of organs.– **30** *1–20m, 21–26m* **31** *wt/1–9w* X From the myriads of animals that have existed We may assume thought as function of matter, & then say, to what function of matter, shall we compare the phenomena of attraction? – This assumption is as justifiable as the other we only know thought, as a phenomenon attendant on structure, & we only know elective attraction, as function of matter. *18x/w* X But why should not matter have such function, as plain facts indicate, as well as they have attraction **32** *wt* What a poor argument, liver continues to secrete bile, & testes same vivifying semen! *1–3m, 5–10m/!?* **33** *wt*♦ a Then animals immortal.– *wt* xa. As the elective affinity of a salt changes, when its elements unite in composition, so may mind.– *2u "thing mental"/2–4m/w* xa *9–29m, 13–29m/22x/wb* good **34** *1–25m, wb* It is sufficient to point out close relation of kind of thought & structure of brain **35** *9–13m* **39** *wt/1–11w* But some of these impressions may be hereditary.– but they are habitual impressions & therefore ♣ about which there is no consciousness, otherwise, mind could act, without having had perception. & why not? would not simple mind feel lust?– *7–9m/x, 23–29m/25w* emotions? **40** *8–14m, 15–17m/16u, 17–21m* **42** *wt* whether dog first time smells partridge knows there is something there. *3–7m/?* **54** *18–29m, wb* p.59 On other hand by attention perception becomes more perfect, & likewise willing does – **55** *1–29m, 28–29m* **56** *14–17m/1–25w* ought this not to be expressed as willing becomes unconscious.– as perception becomes unconscious,– so do impressions, & hence ideas, & actions consequent on these ideas.– *wb* a person whistles – & tricks are wholly unconscious actions.– great effort of attention to perceive them these acts are only unconscious in the steps **57** *wt* An action becomes habitual if repeated without at same time, without much attention at first as taking off cover to tea-chest. **66** *3–21m, 3–4m, 9–11m* **67** *zt, 21–23m, wb* Is Conscience effect of certain lines of action, useful on the large scale having been done on the less scale **80** *3u "marvellous", 4–8m/5u "miraculous"* **92** *18–20m* **93** *1–9m, 12–26m* **94** *1–4m* **97** *28–29m* **98** *wt* X is not an indistinct idea seldom repeated, because unsatisfactory? *2–3m, 11–12X* **99** *wt* like manner we learnt to repeat at school – I think by same association. *1–16m/8X, 17u "attention"/w* repetition? **101** *wt* Conception of a view or is a perfect instance of association of many impressions *4–11m, 28x/u "reverie", 11–29w* X As far as the mind is concerned nearly like sleep. the relations of ideas just past not quite so broken – body different state *wb* argument for mind working always during sleep *wb* habit must be associated will.– **104** *19u "of emotion"/18–24w* Does thinking of vexing thing, bring other disagreeable thoughts? **105** *18–29m* **109** *24–28m/x, wb* Scarcely ever a new thought arises from this process – only old associations **110** *11–13m, 19–29m/29w* imbecility of age? **111** *1–4m, 23–29m/x/wt* x I know from experience ♣ memory of many unconnected facts is far most easy to me by such local associations. **114** *11–14m/?/14u "are little acquainted"/15–16w* what difference? **116** *wt* A dog. when he has had good hunt after any animal in a spot in a hedge recollects it, & always go there with pleasure & eagerness *wb* Horse sweating, when he hears hunting horn in stable. Euphrates if he guessed he was going to race by little water being given him mad with eagerness all night. **117** *wt* Horses wonderful local memory *20–24m* **122** *2–3m* **132** *19–24m* **134** *17–19m* **143** *wt* 3 These cases like Miss Cogans, & serve to show that affections of brain will recall facts in ♣ an individual life after long periods.– *1–8m, wb* 3 These may be adduced as nearly as wonderful a priori as instincts – an habitual action being repeated would be more to my purpose.– **144** *14–24m* **147** *17–29m (Prichard)* **148** *1–3m* **149** *1–6m* **150** *3–8m, 19–29m* **151** *9–13m/x, 26–29m, wb* Exactly like my Father's case of Archdeacon Corbet **152** *11–15m* **154** *3–7m, 22–27m/?, wb* Animals minds are influenced by age, like that of man **155** *13–16m/14u "Dr. Beattie", wb* X What has he written? **156** *5–10m, 18–26m* **157** *11–15m, 19–28m* **158** *10–13m/[...]/w* (1)(a) *14–16m/[...]/w* (2) *wb* (a) Does not a bird when it builds its nest, use abstraction respecting place, & softness & elasticity of materials, which are not constant in kind, but only in quality.– **159** *1–5m, 10–13m/11w* (a) *wb* animals have ideas of colour.– mad horse (?Cline) dread of scarlet. of any kind.– – Smells. do – **161** *19–29m* **162** *wt* Peacock has idea of beauty?– *3–8m/[...], wb* Animals sometimes suffer from abstraction. Thus the Casarca which bores through walls, has an abstract idea of vertical surface of hard earth as the requisite, & does not combine, such conditions as imply a cliff of earth **163** *wb/7–24w* When cat pounces & runs after feather, it knows it is not mouse, but does it not use imagination or picture to itself it is.– X → quote Madam Necker. on playing of children– **164** *20–22m, wb* What are the feelings of a dog, when he bays the moon? **165** *wt* When two Male birds are rivalling each other in singing is it not a work of imagination? **167** *wt* Is not imagination, abstraction of several different parts of several ideas & their unions, instead of as in pure abstraction of same qualities (as colour &c) ♣ several ideas? *23–24m/?* **168** *27–28m/?* **172** *1–6m/w* common to animals *10–13m* **173** *1–29m/4–18w* very Poor **174** *26–28m* **175** *wt* If because such combination is observed in an animal, it is called instincts.– there is an end of argument. *1–6m* **176** *8–14w* Yet imagination must be always checked by reason – otherwise dreaming *9–17m, 21u "Reasoning"/22u "reason", 26–27u "Discursive Faculty", wb* I suspect the Paper in Zoological Journal will be worth study.– **177** *3–7m* **179** *wt* Perhaps mathematical reasoning does not.– each step there does not require the memory & knowledge of all contingencies,– it is merely to find the step, & then to pursue the deep train.– *4–6m/w* requires properly arranged memory XX **181** *12–13m* **185** *12–13m♦, 24–29m* **187** *17w* All Poor *17–23w* But yet must be thought over with regard to Transmutation of species theory **191** *wt* Would not simple association of ideas lead to this expectation, which would be believed in till contradicted (which it is not) by experience.– *13–19m/14x, 21–22m/→ /wb* Surely all this may be resolved into simple fact we trust our memory, until taught to contrary. **199** *wt* A man may wish to jump from a bridge to save another, but absolutely will not let him.– Makes the muscles fall, & heart sink – *4–12m* **202** *across whole page.w* See following Pages & Copy all this *↕w/wt*♦ H believed – pretty world we should be in!– But it could not be believed excepting by intellectual people – if I believed it – it would make no difference in my life. for I feel more virtue more happiness – Believers would ♣ will only marry good women & pay detail attention to education & so put their children in way of being happy. *wt*♦ It is yet right to punish criminals for public good. *wt*♦ All this delusion of free will, would necessarily follow from mere feeling power of action.– *wt*♦ View no more unreasonable, than that there should be sick & therefore unhappy. men *wt*♦ What humility this view teaches *↕w*♦ A man ♣ hearing bible by chance becomes good. this is effect of accident with this state of desire (neither by themselves sufficient) effect of birth & other accidents: May be congratulated, but deserves no credit *wb*♦ P For wickedness is no more a man's fault than bodily disease!! (animals do persecute the sick as if were their fault). If this doctrine were. H **203** *7u "consideration"/wt* Yes but what determines his consideration?– his own previous conduct – & what has determined that? & so on – Hereditary character & education – & chance (indepdt of his will) circumstances. *3–8w*♦ Changes of character possible from change of organization *11u "desires" "conduct"/w* What has given these desires & conduct *13a "agent"* but not desired *4–27w*♦ When opposed desires are absolutely equal which is possibility. May free-will then decide.– but it must be decided by habit or wish & these all originate as before *15–27w*♦ Then why does not act of insanity give shame?? *wb* According to all this ones disgust at villain ♣ is nothing more than disgust at some one under foul disease, & pity accompanies both. Pity ought to banish disgust.– P→ **204** *29"...* **205** *1–4m/4...", 15–17m/"..."* **206** *9–12m, 16–20m, wb*♦ A man may put himself in the way of above accidents. but desire to do so arises as before; & knowledge that the effect will be good, arises as before. education & mental disposition.– *wb*♦ One feels how many actions, not determined by will, passion – When the motive power feeble & complicated & opposed we may free will (or chance **209** *4–5m/27–28m (Stewart)* **210** *wt* I presume these first truths are something quite distinct from instinctive knowledge. or passion – as fear of death.– sexual desire – pleasure of affection or charity – *1–5m/"..."/w* How many of them do animals possess? **212** *10–15m* **213**ˋ*9w* The following pages – very poor **217** *14–17m* **218** *8–17c/12u "required"/11–14w* so much the better! Fee-hunting doctor *wb* In short that your hypothesis shall be real cause with respect one item at least in group of facts – if it be only possible cause. hypothesis of very poor kind. V. M. le Comte **219** *18–20w* to 256. wretchedly poor – as far as originality goes **221** *3–6m* **233** *wt* Main difficulty of judging probabilities multiplied into probabilities. & the alternatives omitted.– present always, except in mathematical reasoning *1–20m/w* again the chance of several independent proofs from probability tending to one end, if not true **241** *1–5m* **251** *8–12m, 10–12m/z/w* yes **257** *wt* X| In insanity, there is belief, though opposed by many of the senses – in dreaming, mainly passive belief from absence of evidence of senses *29m/X, 26–29w* drunkeness more ♣ closely allied than dreaming **258** *wt* no, a vivid thought neither pleasant nor painful but merely vivid cannot be dismissed even by strongest will,– is insanity an unhealthy vividness of thought. *7–8m/u "is|insanity", 9–19w* they ought not to be classed together, ♣ the reality of the thought or absence of doubt in one case being owing to the weakness♦ absence of contending impressions, & in insanity opposed to many present impressions. *17m/ → /wb* In Spectral illusions, what is history of kind of impssn **259** *wt* (a) There is some sophistry here: insane man has perfect consciousness – somnabulism has not.– *2–5m/w* a *7–16m, 12–17m, 21–23w* 5th Drunkeness Nitrous oxide **260** *21–22m, wb* It would be worth while to write down every dream **275** *wt* & double consciousness & likewise many which from repetition have ceased to be objects of conscious memory – namely all habitual movements *8–17m/12x/17?* **287** *16–19m, 23–28m* **289** *1–8m, 10–19m, wb* I have a distinct recollection of solving some geological puzzles in my sleep – what it was I forget, which I am surprised at for I have so clear an indistinct notion. **291** *19u "dream"/w* ? dream – *wb* Mem: my father's cases of quick oblivion – **311** *wt* like the memory after apolexy in some cases – "Clubs are trumps" ♣ V. ante *1–5m* **312** *24–29m (A. Comte)* **313** *18–20m*♦ **314** *1–4m/2u "pleasure"/?, 8–19w* No account is here taken of the consciousness of people, that they are insane **315** *5a "is not corrected"* can not be corrected in the one case, dreaming, *6a "would."* , & in the other case, is so vivid, that external world is almost wholly neglected. *10a "state"* partially *10a "will."* ; insane people do to certain extent vary, & forget the insane train♦ ideas. *15u "higher states" "mania"/w*♦ My father considers the two as wholly different. *27a "some impression has"* any impression is *28a "of the mind"* by the mind */wb* the thinking machinery acting with unequal & praeternatural force *28a "and"* accordingly **316** *2a "are calculated immediately to"* though often rightly perceived (as in D Ashe & in case of man eating porridge) do not immediately **318** *14–15m* **320** *wt* Surely as in passion from fatigue, (or fear from sickness) from long habit some object must be fixed on & it scarcely signifies what it is. *2–4m, 26–28m, wb* just as passion of the above kind is generally most unreasonable **321** *11–14m* **330** *wt* low spirits is to melancholia : : passion to mania – frame of mind in the state & any idea fixed on.– *4–7m/7u "occasional cause", 12a "constitutional peculiarities"* diseased state of brain. **349** *19–21m* **355** *26–29m* **356** *2–12m, 13–26m* **357** *12–13m* **363** *1–5m* **375** *wt* if an idea was called up, with this degree of vividness, like a concepcion – no one would doubt it was a

ABERCROMBIE
concepcion *8–11m/w* how completely ungoverned **379** *1m/w* All trash **431** *11–15m* **433** *2–12m*

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136 *15u "trowel"/w* a mistake

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ad, beh, fg, gd, mg, oo, ss, tm, v

NB p60, p69◆
Sexual Selection Birds good– p76◆ Q
Rein-deer Horns – 89◆
139
S. Selection – Birds Wax-wings – 153◆ Q
167, 182, 190, 192
SB ➾ p.60. Two differently coloured vars. of sable with fur of qualities live in different kinds of wood, & colours apparently of service to them in each case; but both vars. highly variable
p.69. Racoons first expelled & now returning in numbers to cultivated trails.
p.139 Dung of Bears almost made up of seeds – <u>Dispersion.</u>
p183 Birds common to America and Europe & vice versâ– depends on winds. during periods of migration
p190 several sp. of duck which occasionally nest in trees

60 *15–23m, 30–35m* **61** *33–36→* **62** *11–18m* **69** *12–20m* **76** *26–35m* **77** *6–8m, 9–11m* **89** *7–9m, 12–14m, 26–27m, 31–33m* **139** *33–35m* **153** *29–32m, 32→* **154** *1–5m* **167** *26–35m (Baird)* **168** *2–16m* **182** *26–35m* **183** *1–10m, 27–35m, 35→* **184** *1–3m, 14–29m* **185** *27–31m* **190** *10–20m* **192** *20–27m*

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NB Pediallariae○ p105 no **105** *18–26m, 18–22m, 27→* **106** *1–3m, 6–12m, 10u "certain | lines", 12–16m* **111** *1–5m, 4–5m*

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vol. 1 NB Brehm origin of Cat Isis 1829 VI. p.639, Brehm do on Pigeon Columba Isis 1828 11 p136
3 *29–31m* **12** *11m* **157** *36–37m (Audouin and Milne-Edwards)* **414** *28m* **416** *3m*

vol. 2 **175** *12x, 16x, 20x, 22x, 23x, 26m, 26w* P *29m, 29w* P *33m* **176** *1m, 1w* P *25w* P *26m, 30m* **272** *"Dufour.2"m* **273** *11m* **276** *"Dufour.62"m*

vol. 3 NB1 E. Lankester on animals of Sulp. Springs
NB2 Karsten Nova Acta omitted. Vol XXI p.643 – important paper on Distrib of Indian Archipelago

p185 – On the Loves of Ants & Aphides
106 *4–6m* **153** *3–4w* Reisen omitted **177** *"Hamilton.1"u "Proc.|II"/w* p545 *"3"u "Proc.|III", "6"u "Journ.|I", "8"u "Geol.|V"/ wb* Last Paper.

vol 4 NB p.419 Temminck on Indian Archipelago–
62 *"126"m* **186** *"Richardson.1"u "1823", "6"m, "13"m* **187** *"19/20/21"m, "27"m, "30"m, "31"m, "Richardson & Swainson.1"u "1831", "Richardson, Swainson & Kirby.1"u "1829| Quadrupeds"* **419** *"20"m* **532** *"Waterhouse.25/ 33/34"m* **533** *"58"m* **534** *"85"m* **550** *"Westwood.22"m* **551** *"48/49"m* **552** *"76"m* **553** *"86/95/103"m* **554** *"111/117/118/121/122/125"m* **555** *"135/153"m* **590** *"Yarrell.23"m* **591** *"40"m*

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af, cc, ch, co, em, fo, gd, geo, in, is, mn, no, oo, or, rd, sp, t, ta, ti, tm, v

SB ❑ β, ➾
Agassiz on Classification
p.5 My valuation of Groups
10 Agassiz explanation of Rudiments
15 Ambylopsis very remote affinities. p.15 Proteus affinities of
24 Admits the Vertebrata p.31 probably arose with other types. Well may he say what changes (p. 24) has 30 years produced. ✏ in date of appearance of groups
30 Isolated Fam. of Fishes.– p.42. do Freshwater abnormals
37 Admits that conditions do not explain distribution
38 No class exist without having some cosmopolitan genera
39 On creation of number of individuals
41 Quotes Waterhouse of representation of all orders by Marsupials in Australia
44 curious tables of relation of Scincus with no relation to geograph. Distribution
49 Aquatic Animals bigger than terrestrial
53 Same species have lived for 30,000 years or 200,000 years as inferred from coral-reefs.
58 Chelonians much individual variability
61 On Lungs of spiders not really two kinds.
74. Possible explanation of the strange Mollusc within Synapta
82 On Classification of Fishes
100 & 113 & 115 On Embryological & geological Succession 107 to 111 Classificatory rank & Geolog. Succession.–
102 Lund on succession of Types.

117 On combinations of characters in old Forms
124 Parasites belong to all orders (no Strepsiptera)
⟨*line across page*⟩
162 the sentences from Linnaeus about genera
166 idea of sp. proceeding from single pair almost given up by all naturalists!
172 On the development of parts in order of importance: I suspect ♣ importance applies solely to being important for classification; if so simple case as might be expected.
225 on degrees of resemblance of embryos

3 *9–10u "peculiarities|structure", 12–13m/w* Geograph Distribution? **4** *21–25m* **5** *2–8w* I believe species genera & classes all equally good or false, as one pleases to call it *9–12w* Botanists far better authority than Zoologists. **10** *11–15m* **15** *11–12m, 4–26m/25u "Proteus anguinus"/26u "North|Japan"* **17** *27–31m* **23** *20–21m/w* Agassiz himself *23–25m* **24** *4–7m/!, 36–38m* **29** *13–16m/14a "Classes"* in 4 great kingdoms *16–18m* **30.a** *33–34m/34u "Labyrinthici", wb* How large a group **30.b** *30u "Goniodonts", 31–34m/31u "Chaca"/wb* What? Abnormal? Amblyopsis is so **31** *1–4m/ !, 5u "Radiata"/w*♦ Planaria **37** *1–6m* **38** *19–22m/?*♦*/u "class", 22–24m/23u "majority"* **39** *32–34m/!* **40** *15–19m* **41** *12–24m/21u*♦*/w*♦ no **42** *19–25m/20u "Labyrinthici"/22u "Cestraciontes"* **43** *17–19m* **43.a** *17–19m* **44** *3a/2–13w* but is this a natural arrangement? May there not be parallel differences in different countries; those in same countries being really allied.– **45** *26–31m* **46** *8–12m* **49** *13–15m* **53** *25–26m* **54** *8–10m* **57.b** *32–34m (T.W. Harris)* **58** *13–15m/13–14u "seen|identical"* **60** *9–10m, 18–20!!/19u "tolerable precision"* **61** *35–36m/m* **65** *zb* **66** *6–11z* **67.a** *31–36m* **74.b** *16–31m (J. Müller, De Bosset, Gegenbaur)* **75** *13–14m* **82.a** *28–38m* **85** *2–6m* **89** *1–2m* **94** *4–8m* **100** *1–13m, 24–28m* **102.a** *29–33m (Lund)/31u "1841"* **104** *22–25m* **107** *25–26m* **108** *22–25m* **109** *6–13m, 22–29m* **110** *9–16m, 30–31m/31u "See|26"* **111** *29–35m* **113** *34–36m* **114** *12–15m, 27–29m* **115** *4–9m, 15–17m, 20m, 27–29m, 30–34m/"..."/31–32u "very|ground"* **117** *10–14m/14u "Ichthyosauri"/?/w* Mere analogy *22–23m, 25c/w∉* **119** *19–21m (J. Müller)* **120** *1–7m* **121** *wt* All rubbish *3–4m/w* oldest *12–14w* !!Eocene Monkey *32–35m* **124** *7–10m/w* Strepsiptera **140** *30–36m* **148** *4–10m* **151** *13–18m (Cuvier)* **162** *1–6m (Linnaeus)* **163** *27–30m* **165** *6–10m* **166** *4–9m, 33–36m* **167** *19–24m, 25–26m, 28–30m* **169** *13– 18m/w* Assumes that these points are not variable

AGASSIZ, NAT. HIST. U.S.
170 *31–34m/!, wb* All this discussion merely shows that no talent can really plainly define principles of Classification **171** *6–8!/6u "sub-orders", 12u "sub-families", 15–16m/u "sub-genera", 20–21u "large | subdivisions", 23–26m/!, 33–34m, 38m* **172** *3–5!, 13–17m, 31–35m* **173** *26–27m/w* ● **174** *22–24m* **175** *9–11m, 14–15w* but the teeth are in gums *15–17m* **189** *23–26m/25u "successively | limited"* **194** *3m* **195** *31–32m, 37–38m* **221** *26–29m* **225** *6–7m, 11–12m, 15–16m* **225.a** *24–26m (Huxley, von Baer, Baden-Powell)* **225.b** *27–31m (Huxley, Cuvier, von Baer)* **228** *26–32m*

AGASSIZ, Louis *De l'espèce et de la classification en zoologie* trans. F. Vogeli; Paris; Germer Baillière; 1869 [CUL]
beh, v

NB 97 ◊ Animals have conscience and soul Man
♦106 Love making of Snails
380 varieties See ✄

97 *27–37m* **99** *11–15m (Ehrenberg, I. Geoffroy)* **100** *1–9m* **106** *13–20m/13–17[...]* **380** *3–11m*

AGASSIZ, Louis *Lake Superior: its character, vegetation, and animals, compared with those of other similar regions* Boston; Gould, Kendall & Lincoln; 1850 [CUL, I]
ad, br, cc, ci, dv, em, fo, gd, geo, hl, ig, mn, no, or, sl, sp, sy, t, ti, tm, v, y

NB p.406 Scratches
SB1 p.13; p.34; 36; p.141; p.142; p.150; p.154; p.186; p.192 to 200; p.239; p.240; p.241; p.246; p.252; 255 to 377; 398
SB2 ☐ ℜ
1.
33 Gar-pike-Ganoid of F.W. in N. America
34 Another rather ancient Fish in F.W.
36 on lowness. because like Embryo.
150 On analogy of recent of N. America & Miocene of Europe
175 List of F.W. Plants of Lake Superior; I doubt whether any use
187♦ 193 On ant. & post. extremities of the Bat, being alike at early age – so in Birds
195 on relation of embryology to geolog succession.
198 on order in Cephalopods – Nautilus simplest
239 – On entomology of ♣ L. Superior – No. American forms.– a common Fauna with Europe & N. Asia – species different but most close (Mem. Kirby thought same) admit identity in Arctic, & most close analogies in L. Superior.
240 on greater range of aquatic Beetles
247 F. Water animals under similar latitudes are uniform as vegetation
2.
♣252 On embryonic forms fish not deserving a separate class.
255 Ganoids &c in F.W.
257 on impossibility of making groups of equal value
260 Reptilian character of Ganoid, "enbodying prospective view of another class"
265 on Families intermediate in character & in space or position.
285. Excellent case of Percopsis of Chalk, which combined characters, which soon diverged, intermediate between Ctenoids & Cycloids.
289. Hardly one Family in which some species are not both Marine & F.W.
292 – case of variability in a Perch, good as for Agassiz
♣317. Esox boreus is made distinct by Agassiz
327. Account for uniformity of Salmonidae by uniformity of conditions
352 Range of Cyprinoids p363
374 Are F.W. Fish of N. America distinct ⟨*over*⟩ 3.
375. On F.W. Fish being analogous with those of Europe & Asia
377 On shoals created as shoals

13 *38–40m* **33** *15–16m, 31–34m* **34** *4–8m, 16–22w* Percopsis p.285 *20–23m, 29–32m* **36** *24–27m, 31–33m, wb* * an entomostracous animal is lower than cirripedes **141** *36–42m* **142** *15u "any | living", 16u "guidance | man", 17–20m/!/18u "the | over"* **143** *18–24m* **150** *1–6m/!/?* **154.a** *16m* **155.a** *3m, 7m, 9m, 11m, 13m, 19m, 20m* **156.a** *15m, 28m, 30m, 31m* **157.a** *3m, 5m, 24m, 25m, 27m, 35m* **158.a** *13m, 25m, 29m, 35m, 36m* **151.a** *4m, 7m, 8m, 12m, 15m, 16m, 20m, 22m, 29m, 32m, 34m* **162.a** *3m, 6m, 8m, 10m, 13m, 16m, 18m, 19m, 37m* **163.a** *8m, 11m, 19m* **164.a** *9m, 25m* **165.a** *10m, 31m, 33m* **166.a** *11m, 13m, 18m, 20m, 24m, 27m, 37m, 38m* **167.a** *3m, 5m, 11m, 14m, 20m, 22m, 25m, 29m, 30m, 31m, 33m, 37m* **175.a** *4m, 5m, 7m, 8m, 14m, 15m, 16m, 18m, 20m, 22m, 24m, 25m, 31m, 33m* **176.a** *8m, 9m, 10m, 17m, 18m, 23m, 27m, 31m, 34m, 38m* **177.a** *9m, 11m* **186** *5–9m, 24–27m* **187** *8–11m, 34–39m* **192** *25–34m* **193** *25–28m, 35–41m/→* **194** *8–18m, 27–29m/28u "equally | fin", 34–37m* **195** *29–37m* **197** *2–6m, 14–21m* **198** *11–26m* **199** *6–8m, 10–13m, 31–36m* **239** *7–14m/7–8w* see to Plants *10–12w* very singular *14–15w* Europe first cold *14–19m, 23u "many genera", 24u "Europe | Asia", 25m/→, 34–35→* **239*** *3–7m, 11–16m, 16–20m/19u "analogous species", 24–27m/25u "equivalent species", 27–31m/w* Subgenera *33u "Arctic circle", 35–36u "We | points"* **240** *11–15m, 19–22m, 28–31m* **240*** *32–37m* **246** *18–23m/!* **247** *26–27!!, 27–28m* **249** *7–8m* **252** *wt* X It comes to this that arrested development ought not to weigh with difference of full development; I doubt truth *9–18m/?/X* **255** *22–27m/?/23u "ten | species", 29–32m, 34–37m* **257** *6–13m, 13–15m* **258** *1–6m* **259** *14–21m* **260** *20–22m, 29–31m/"..."* **261** *13–17m, 17–19m, 28–30m* **262** *1–7m* **263** *32–35m* **264** *1–4m* **265** *17–19m, 20–21m/w* New Law *15–28m, 32–36m, wb* insects wd illustrate this or Plants. Mem. Hooker these are a wandering species is often aberrant **266** *11–13m* **284** *10w* F.W. **285** *4a "never"* with this exception *6–9m/8u "chalk", 10–12m, 14–15m, 19–21m/w* I wonder whether this agrees with Müllers classification, as seen in Owen Lectures XX *24–26m/25u "Ctenoids and Cycloids", wb* XX if Fish properly classed, whether so related to geologi. formations. **289** *22–25m, 24–31m/24–28w* opposed *30–33m* **292** *15–20m, 26–35m/30–35m* **293** *30–33m* **294** *19–23m* **295** *7–11m (Richardson)* **297** *24–29m* **318** *2–6m, 9–11m* **327** *27–30m/?* **328** *20–24m* **329** *2–10m, 7–21m, 23–25m, 27–29m, wb* The fact of existence proves some advantage in the two types else one wd outbreed the other.– **348** *31–34m* **352** *22w* Yes Sir J Richardson *24–28m, 25X, 29–32m/29–30u/30–33w* p.353 **353** *15–16m* **363** *36–37m* **374** *7–12m, 19–22m* **375** *16–17m, 16–20m, 20–21m, 23–25m, 27–30m, wb* I think Behring St. must have been land before Glacial epoch **376** *12–15m, 21–23m, 33–37m* **377** *16–22m/17–18!!!!, 25–28m/w* Andrew Smith *wb* argumentum ad absurdum **398** *4–9m/w* i.e. W. of Lake Superior *31–37m* **406** *19"...♦, 23u "eastern"/w* N *24u "western"/w* S *29–34m/"..."* **408** *wt* Why scratches all N. & S. or near it – for any current temporary or permanent from S. wd not tend to scratch.–

AGASSIZ, Louis *Methods of study in natural history* Boston; Ticknor and Fields; 1863 [Down, I]
af, tm

NB p.105 Snakes and certain Lizards compared & Lizards and Salamanders Excellent cases of Analogy of Form

105 *23–29m* **106** *9–13m* **107** *13–16m*

AGASSIZ, Louis *Nomenclatoris zoologici index universalis* Soloduri; Jent & Gassmann; 1848 [CUL]

AGASSIZ, Louis *Reports on the Florida reefs* Cambridge, Mass.; 1880 [Down, I by Alexandre Agassiz]

AGASSIZ, Louis and GOULD, Augustus Addison *Principles of zoology: part 1, Comparative physiology* Boston; Gould, Kendall & Lincoln; 1848 [CUL]
beh, cc, em, gd, hl, sx, sy, t

SB1 p.5; p.31; 123; 156; 165; 170; 179; 192
SB2□ β
Gould & Agassiz
5. On Highness & Lowness.
31. Blind Cavern fishes & Crabs
123 Speaks "if order of formation is in relation to importance" – I infer he think so
106 Male toads carry eggs on Back
157 Admits difference in C. of Good H & S. America, & admits some higher law
165 Arctic Regions not one bright bird or Fish with varied hue proof of action of external conditions.–
179 Rivers of U. States some fish in common, some distinct.

5 *21–26m/22u "perfect | proportion", 30–34m* **31** *21–27m* **106** *19–22m* **123** *2–6m, 8–21m/9w* (a) *30–34m, wb* (a) There is nothing to show this in previous chapter **156** *14–21m* **157** *5–12m* **165** *4–5m/5u "fish | hues"* **170** *25–26m, 28–29m* **179** *25–27m* **192** *3–10m*

ALDER, Joshua and HANCOCK, Albany *A monograph of the British Nudibranchiate Mollusca* parts 1–7; London; The Ray Society; 1845–55 [CUL]
em, hl, sh

Part 7
SB
p.25 Larvae in operculated shell
26♦
34 ♣ It is sign of lowness an animal undergoing its metamorphosis in a free state – some mollusca undergo a free metamorphosis & in some it is in egg state.–

25 *29–32m* **26** *13–18m* **34** *27–31m*
℘

ALLEN, Grant *The colour sense: its origin and development* London; Trübner; 1879 [CUL]
ad, beh, cc, cs, fg, hy, oo, phy, ss, t, v

NB1 why shd the exercise of certain gustatory nerves by sugar ♣ give grt

pleasure & the exercise say of the tactile nerve of the tongue give little or no pleasure
NB2 Hybrid – Error This is mere cross fertilisation in Aphys p39◆ 39?
Wiesner – coloured scales of tip of short to moderate height
73 Saaf-maal
131 134 ?
like Hook.bug new 186

xi *8m, 10m* **xii** *3m* **4** *wt/1–17w* Fritz Muller years ago maintained that surrounding coloured flowers influenced s.s of Butterflies Self Galapagos *12–18m* **39** *19–21m◆, 19–20?◆, 23–24?, 26u "essentially"* **40** *13–17m* **41** *16w* ? Lilies *16u "monocotyledons", 28w* Pinks *28u* **45** *29–35w* Hazel and P◗ crimson female flowers **48** *3–4m* **73** *25–28m (Lubbock, Fritz Müller)* **131** *5–20w* I believe specially acquired *18–29m* **143** *26–32m, 26–28w* Valerian○ cats **152** *5–23w* my Copridae magnificent do the splendid Curculid live on flowers **186** *1–35m (Wallace)* **190** *13–14w* Peacock!?

ALLEN, Grant *Der Farbensinn* introduction by Ernst Krause; Leipzig; Ernst Günther; 1880 [Down] ℘

ALLEN, Grant *Physiological aesthetics* London; Henry S. King & Co.; 1877 [Down]
beh, phy, t

NB 194; 159 appreciation of colour

vii *1–21m* **viii** *1–4m* **20** *14–28m (Bain)* **21** *1–11m* **22** *12–16m, 28–29m* **23** *1–29m* **24** *1–29m* **25** *1–29m* **26** *1–29m* **27** *1–28m* **36** *17–27m* **37** *1–4m* **39** *8–9w* association omitted *10–13m/?, 11–12m, 19–29m* **40** *1–23m* **42** *23–29m* **43** *1–29m* **44** *1–29m/19u "nerves | calibre"/w* Why? **46** *23–29m* **47** *1–9m, 19–23m* **48** *11–21m* **49** *19–24m* **67** *5–26m* **68** *1–29m* **69** *1–29m* **70** *1–29m* **71** *1–18m* **72** *18–29m* **73** *1–20m* **74** *1–29m* **75** *1–3m, 20–29m* **76** *1–4m* **79** *25–29m* **81** *15–28m* **82** *1–27m* **87** *12–29m* **90** *3–29m* **91** *1–29m* **92** *1–13m* **99** *1–23m* **100** *1–16m* **105** *13–28m◆* **106** *1–20m◆* **108** *14–19m* **109** *26–29m* **111** *6–28m* **112** *1–28m* **113** *22–29m* **119** *1–11m, 19–27m* **120** *1–16m* **123** *19–29m* **124** *1–15m* **125** *4–29m* **126** *1–23m* **128** *7–13m* **150** *1–29m* **151** *1–27m* **152** *1–28m* **153** *1–29m* **154** *1–29m* **157** *1–26m* **159** *3–17m* **161** *18–28m* **163** *23–29m* **164** *1–29m* **165** *1–13m, 25–27m* **168** *27–28m* **169** *1–9m* **194** *12–18m*

ALLEN, Joel Asaph *History of North American pinnipeds* Washington; Government printing office; 1880 [Down]

ALLMAN, George James *A monograph of the fresh-water Polyzoa* London; The Ray Society; 1856 [Down] ℘

ALLMAN, George James *A monograph of the gymnoblastic or tubularian hydroids* 2 vols.; London; The Ray Society; 1871–72 [Down]

vol. 1 NB O/
105 *37–38m*

vol. 2 NB 201 like Galls
201 *10–17m*

ALLEN, George James *A report on the Hydroida* Cambridge, Mass.; University Press; 1877 [Down, I by A. Agassiz] ℘

ALTUM, Bernard and LANDOIS, Hermann *Zoologie* 2nd edn; Freiburg im Breisgau; Herder'sche Verlagshandlung; 1872 [Down]

ANDERSON, John *A report on the expedition to Western Yunan viâ Bhamô* Calcutta; Office of the Superintendent of Government printing; 1871 [Down, I] ℘

ANGELIN, Nils Peter *Iconographia crinoideorum* Holmiae; Samson & Wallin; 1878 [Down] ℘

ARCHIAC, Étienne Jules Adolphe d' *Histoire des progrès de la géologie de 1834 à 1845* vol 1 (1847) Paris; Soc. Géol. France [CUL]
fg, geo, phy

NB Possibility that ◊
X 287 seeds
✍ p.287 Blocks actually transported from Terres de L. Philipe & Graham Land
✏ Self on Mould/223

222 *7u "terre végétale", 7–10m, 10...", 15–19m/16–17u↔, 21–29m* **223** *⇑1u "vol | 1837"* **224** *6–7u⊂⊃↔* **287** *10–20m/w* seeds

ARGYLL, (Campbell, George Douglas) Duke of *Primeval man* London; Strachan & Co.; 1869 [CUL]
beh, ds, h, hl, is, t, ta, tm

NB ◆ p60; 66; 70; 100; 130; 162; 165; 172 to 174; 178 to end; Only Man all used
I doubt whether low intellectual state & high moral state would ever concur.–
◆If one of the Lower animals cd reason & he heard that man was ashamed of being a co⟨*descendant*⟩○ with him he might laugh with scorn & ask what of ♣ practices →

♦X Degradation of Man In Partricide – Polyandry ♣ Bloody sacrifice Superstitions causing life to be miserable, & abject fear justice by administering poison & other fatal schemes – Despotic government (& abject obedience) with right of life & death)

60 *14–15z* **70** *10–16m* **100** *1–5m* **130** *12–16m* **131** *10–13m/11–12u "acquire | knowledge"/10–16w* No an old Rat does all but transmit, & perhaps this How transmit by example? **132** *wt* ie state in which we now see savages *1–3m* **136** *wt* I must rest my conclusion on descent & not on traces of savagedom.– *wt* Say animal nature – not necessarily like present Barbarians, *1–4m* **139** *3–7m* **145** *10a "use"* the fashioning *11u "fashioned | purpose"/w* over **147** *3–7a/c/m/u/w/x¢* **148** *4–6m* **156** *9–13m* **162** *1a "weaker"* or smaller **163** *6–7w* But not the least civilized **165** *6–12m* **172** *10–14m (Darwin)* **173** *1–7m* **174** *14–17m* **175** *13–17m, wb* & for Islds. man obeys usual law of no mammals, in Isld except by boat building races **178** *4–6m* **180** *1–5m , 8–11m, 8–13w* No India N. Africa Syria China New Zealand **181** *11–13m* **182** *13–17m* **185** *2–5m (Lubbock)* **188** *13–17m* **189** *9–14m* **190** *9–13m (M. Müller)* **194** *4–8m* **199** *2–10m (Lubbock), 11–17m*

ARGYLL, (Campbell, George Douglas) Duke of *The reign of law* London; Alexander Strachan; 1867 [CUL, S]
beh, he, sx, t, tm

NB1 187; 196; 198 sexual; 203 Argus Pheasant; 206 Narwhal Sexual; Humming Bird tails 246 do; 253; 324, 326 inherited mind; 256 Correlation of Growth
NB2 8; 14; 30; 84; 89; 102; 133; 178
⟨also attached: p. 590 of The Saturday Review, 15 November 1862⟩; ➾To be returned

10 *14m* **13** *8m* **14** *9–12m* **30** *19m* **84** *17m/w* see p.285 **102** *3–5m* **133** *7–14m/?* **136** *4z* **142** *7–8m* **171** *10–13m* **177** *6–9m* **187** *10–11w* Wryneck○ Creeper **196** *4–15m* **198** *5–15m/wt/1–13w* But there is no such thing as beauty, except to eyes of some living creatures **199** *24m* **200** *8–13m* **203** *5–12m/8u "a sphere"* **206** *9–16m* **212** *19–20z, 23m* **217** *3– 7m* **221** *19–24m* **228** *19–23m* **232** *4–7m* **246** *6–24m/24u "central feathers"* **247** *5u "which | the", 7c/w¢, 8u "Tufts | of", 9u "greens | violets", 12–14m, 16–19m* **251** *20–22m* **253** *7–14m* **268** *10–13m/w* no no **279** *17–22m* **285** *15–16m/w* See p.84

ARISTOTLE *On the parts of animals* tr. W. Ogle; London; Kegan Paul, Trench & Co.; 1882 [Down]

ARNOTT, Neil *Elements of physics or natural philosophy* 2 vols.; London; Longman, Rees, Orme, Brown and Green; 1833 [Down]
geo, ve

vol. 1 279 *22–28m, 22–29w* Volcanoes offer certainly some counterbalance to the effect of running water though perhaps not one equal to it.–

vol. 2, 5 *12–15m* **10** *21m, 30–32m* **11** *1–4m, 9–18m, 20–25m* **19** *16–24m* **23** *22–24m* **24** *11–13m* **25** *22–30m* **28** *3–10m* **29** *21m* **34** *21–29m* **135** *28–29m* **198** *30–33m* **199** *1–5m* **266** *13–16m*

ASKENASY, Eugen *Beiträge zur Kritik der Darwin'schen Lehre* Leipzig; Wilhelm Engelmann; 1872 [CUL]
cs, fg, gd, in, sx, v, t

NB p.54
I have only skimmed this Book – too difficult Supports Nageli on everything

4 *11m* **7** *wt* Argues against quite undirected variation *1–33w* I admit not even individual variation in all directions, as in case of colour of rose – no marked variations is no evidence against some variation in many ways.– **8** *21m* **27** *9m* **36** *11m* **53** *9m* **54** *1–15w* Yes if strong tendency to vary *12–16m, 13–26w* Plants in distant localities remain the same but they cross within same locality *26–32m, wb* variation supervenes only by sexual generation **55** *1–26m, 2–24w* This all in fact explicable **66** *25m*

AUBUISSON de Voisins, Jean François d' *An account of the basalts of Saxony, with observations on the origin of basalt in general* trans. P. Neill; Edinburgh; A. Constable & Co; 1814 [CUL, pre-B]
mi

NB p180 Lead volatilised into vesicular cavities of Basalt when used as the wall-stones of a furnace
97 *18c/w¢* **180** *1–12m* **275** *8–13z*

AUBUISSON de Voisins, Jean François d' *Traité de géognosie* 2 vols; Strasbourg & Paris; Levrault; 1819 [CUL] S: C. Darwin HMS Beagle
co, fo, geo, mi, se, sh, t, ve

vol 1 NF C Darwin
Saussure voyages dans les Alpes Study works of Cordier & Dolimen
Strength of salt water diminished on sea coast – Cocos p43

AUBUISSON, GÉOGNOSIE

The Sandstone craters of Galapagos allied to Salses. (salt & mud) but differs in size & some other respects.– p.189.–
Saussure says laminae & strata of Slates same p291
Cleavage p.297
Proofs from Orbicular structure of movement in particles of Felspar & Hornblende p.308
Globular porphyry p.311
Empty concret. Ferrug. Balls. Chiloe 318

22 ⟨*markings signed RF*⟩ **28** ⟨*some marks signed RF*⟩, ⇑*15–1m* **43** *5–9m/"..."* **61** ⇑ *8–1m* **62** ⇑*5–1m* **77** ⇑*9–5m* **86** ⇑*4–1m* **189** ⇕*m* **291** ⇑*10–3m* **297** ⇑*15–1m* **298** ⇕*m* **308** ⇑*17–4m* **311** *3–10m* **318** ⇑*12–1m/wb* The♦ spots♦ C. of Good Hope **442** *table.w* 46°–47°lat *wb¢¢* **443** ⇕*w¢¢*

vol 2 NF1 Ma◗ Hydrate of iron
N.B. I see the only way of describing Porphyrys & Greenstones, is by describing each base. & each crystal
Beyond secondary rocks, no page marks without reference; excepting the Volcanic rocks & Mineral Veins
Voyage Mineralogique en Hongroi et Pais Bearn
Brongniart Traite de Mineralogie
Breislac Voyage physique en Campania
NF2 ✍Ch. Darwin
Secondary formations
Coal form: 276 Conglomerates
Porph. base to Conglomerate 309 Maclure N. America
Angular concretions of Limestone 346 K. George Sound
Cellular limestone rauchwak 345 angular cavities Coquimbo
Stinkstone connected with 390 gypsum beds Andes
Seashells in salt bed 395
Part of tree silicified 452 part Carbon ◊
Hydrate of Iron C of Good Hope 456
do 476
Gold watering 479 Valparaiso
Alluvial salt form 483–485

5 *14–19m/x/wb* X This is remarkable if all rocks are metamorphised **6** *1–7m,* ⇑*13–10m/x* **7** *17–19m* **8** *2–5m/w* Maldonado Portillo V. p.15 *16–20m, wb* X Analogous to sedimentary beds where quartz sand is alone found pure or lime in masses: What would result from calc. Sandstone? Would calc be removed by Volcanic agency? **15** *2–8m/x* **25** ⇑*4–2m/w* C of G Hope ⇑*1x* **43** ⇑*12–8m♦/X,* ⇑*5–1m* **44** *13–20m/x, wb* It is remarkable no tin in such rocks in Cordilleras.– from Cornwall Tin miners at Copiapò **47** *1–10m/x* **48** *4–5?* **49** *5–10m,* ⇑*7–1m* **50** ⇑*10–1m, wb* two cases.– **66** *6x, 7–12m/w* Very abundant **72** ⇑*10–2m/x* **73** *1–4m* **75** ⇑*16–1m/x* **79** *wt* Not in Chonos○ grand form *1–3m* **80** ⇑*15–4m/x/13u "quelquefois"* **83** *6–12m/w* Chonos○ No **85** *15–24m* **95** ⇑*11–1m/x/w* turn over *wb* Therefore materials must be separated by some process: & not layers of siliceous sandstone & less pure layers.– **96** *1–10m, 15–20m* **100** ⇑*15–1m/x/wb* Falkland Isld.– **101** *10–20m/18–20m/x* **102** *1–5m* **104** ⇑*10–4m/x, wb* Mention in T del Fuego the Lydian balls from Laguna **108** ⇑*12–1m/x* **109** *1–10m/w* Maldonado **114** ⇑*10–3m/x* **125** ⇑*7–3m* **132** ⇑*8–6m/x* **133** *2–5m, 8–15m* **151** *1–8m/w* T. del Fuego **154** ⇑*15–3m/w* Andes **155** *1–15m* **157** ⇑*15–1m/x/w* False C. Horn **158** *1–7m* **189** *4–8m/x/x, wb* Therefore subsequent action purified it.– **211** ⇕*m/x, wb* X Ponsonby Sound **212** *1–15m* **223** *1–10m,* ⇑*3–1m* **224** *1–3m* **228** ⇑*15–1m* **230** *14u "druses"* **236** *6–16m/12–16m* **276** ⇑*20–1m* **309** *6–11m,* ⇑*8–1m, wb* Turn over **310** ⇑*5–1m* **311** *1–6m, 15–20m* **312** *1–11m/6–11m* **345** *wt* Cavities owing to dissolved angular fragments Mem the Coquimbo limestone shows facility or small difference causing redissolution ⇑*15–10m/x* **346** *13–22m* **347** *1–8m* **389** ⇑*6–3m* **390** *1–12m/3–6m/5–8m* **392** *1–10m* **395** *wt* It is clear from fineness of sediment that salt beds true deposits, not Subsided salines *12–20m* **452** ⇑*12–2m* **456** ⇑*10–1m* **457** ⇕*m* **476** ⇕*m* **479** ⇑*12–1m* **483** *6–20m* **484** *11–15m/m,* ⇑*5–2m/m/w/wb* Mem: How universal this character. Copiapo. Galapagos. Patagonea How far is dryness a general characteristic **485** *wt* NB At Iquique, the fresh water shows that Nit. Soda is not beneath the surface. *1–6m, 12–16m,* ⇑*15–1m, wb* The formation of salt is more probable if the Carb of Soda effervesces. & that may as well as Nitrate of Potash. **520** ✍*"L'olivine".m,* ⇑*4–1m* **523** ✍*1–9m/w* Ascension *7u "globules"* **526** ✍ *"L'argile".m/w* Cauquenes○ **528** ⇑*4–1m/w*✍ Galapagos ⇑*4–1m/x* **529** *1–20m/wt* These Greystones some of the commonest Volcanic rocks *4–7m*✍*/m* **530**✍ *1–5m/w* Ascension **531** *10–15m*✍*/x*✍*/m/x/w*✍ Ascension **532** *5–10m/x/w* A **533** *wt* In Galapagos & Ascension, in Basalts, or at least dark Trachytes *6–12m/x* **534** *9–15m/x*✍*, 9–15m/x/w*✍ Ascension ⇑*12–1m/z*✍*/w* A **535** *wt*✍ Ascension *1–2m/A, 9–18m/m*✍*/w*✍ 4 Analyses in Beudant 77X ⇑*5–1m/m*✍*, wb*✍ Felspar 64 May be taken as percentage of Silica Hornblende 44 Augite 50 **536** *4–8m/w*✍ therefore diff. comp. **537** *wt* (a) Mem The trachyte below wells, decidedly prismatic or irregularly columnar *1–4m, 11–22m/14–17m/w*

(a) ⇑*3–1m, wb* Ascension! Phonolite. My felsp. this state **538** *wt* The basal hills of oldest series, allied to base of Phonolite cones, St Jago *1–4m* **539** *1–4m, 5–8m*✍*, 7–11m/w* At SSt Jago, not slaty from force of pebbles neither decomposes *13–14*/u "habituellement",* ⇑*11–1m, wb* * Therefore Ascension not Phonolite **540** *2–8m/m*✍*/w*✍ Characteristic of St Helena *6–12w* Phonolite same relation to Trachyte as basalt to basaltic lava ⇑*12–5m,* ⇑*2–1m* **542** ⇑*10–1m/w*✍ Ascension **545** ⇑*10–1m* **548** ⇑*10–1m/*⇑*6–2m*✍*, wb* Mem Ascension **549** *wt* I think from these descriptions the Galapagos trachytes, must be very singular rocks. ⇑*15–5m/x* **550** ⇑*12–9m* **552** *4–6m/4u "phonolites"/5u "porphyre siénitique", 11–19m*✍ **560** *15–20m/w* Steam cause of vesicles **562** *7–15m/13–15m/x* **563** ⇑*11–10m* **564** *1–4m/wt* Does ● say that Sapphire are found at the Galapagos?– **565** *1–7m* **568** *3–8m* **569** *1–4m, 6–11m/8–11m/x/w* Van Diemen's land ⇑*4–1m/w* C. de Verde **573** *1–8m* **574** *15–17!* **575** *17–21m* **578** *3–10m* **580** ⇑*6–2m/w* T. del Fuego **581** *wt* Wackes being often amygdaloid & therefore porous explains greater decomposition ⇑*11–8m* **582** *1–2m* **590** ⇑*17–1m/m,* ⇑*17–13w* Coral Paper ⇑*13–10w* Coral B Paper *wb* If trachy, where eruption happen, is generally missing, there is less chance of alternations than if subsiding; agrees with facts in Pacific **591** *1–15m/w* Is this true? **593** ⇑*10–1m, wb*✍ Dolomieu in Voyage to Lipari Isld talks much about effects of Vapour. says deposits crust of oxide of iron or outside fragments. **595** ⇑*8–5z* **596** ⇑*15–10m* **605** *1–5m/x* **608** *1–6m/w* St Jago **609** *1–6m/w* Copiapò *wb* NB The existence of sea shells on several of the sandstone craters at Galapagos, argument for mud eruptions. **616** ⇑*17–5m* **627** ⇑*12–1m* **636** *1–10m* **637** *3–17m/13–17m* **645** ⇑*8–1m* **647** ⇑*15–3m* **648** ⇑*13–5m,* ⇑*4–1m* **649** *1–5m,* ⇑*13–6m,* ⇑*4–1m* **651** ↕*m/w* Mem: Yaquito○ Gold Mines ⇑*7–6!*

AUDUBON, John James *Ornithological biography* 5 vols; Edinburgh; Adam Black; 1831–39 [CUL, B]
beh, br, ch, mg, sp, sx, ta, tm, y

vol. 1, 4 *35–37m* **5** *35–38m* **13** *36–38m* **14** *32–37m* **15** *16–17m, 18–20m, 21m, 22–29m* **34** *3u "colours|duller"* **110** *11–18m* **113** *14–16m* **139** *12–14m* **174** *29–32m* **175** *27u "a|yellow", 34u "fine yellow", 35u "brownish-olive"* **193** *22–25m, 27–31m/30–31u "equally|sexes", 36–38m, 39u "when|line"* **203** *4–9m* **216** *27u "sides|domestic", 33–36m* **221** *4–10m, 19–21m, 26–27m, 30–32m* **222** *18–21m, 37–38m* **223** *11–14m, 16–18m* **229** *14–17m* **233** *wt* Male all vermilion *2u "male|them", 8–12m, 15–18m* **234** *31u "whole|vermilion"* **235** *2u "light brownish-green"* **254** *19–20m* **257** *3–4u "Head|blue", 15–16m* **280** *15–22m* **327** *27–33m* **352** *8–11m* **377** *32–33m* **378** *7u, 8–10m/8u "brightest|green"/9u "three years", 11–13m, 14–16m* **379** *21u "general|blue"* **380** *2u*♦ **389** *20–23m* **393** *16u*↔*, 21–22m* **394** *19–22m* **396** *16–17m* **486** *16–20m*

vol. 2 NB 407 Expression Owl puffing out feathers
SB Vol. 2.– Audubon
p10; 22; 51
55 Jay – attend whether young like old in other jays
75, 79 woodpeckers alternately incubating
87 sexes very different & young not like female
89, 92; 143; 153; 170; About sexes of Birds
195 all Thrushes spotted on breast How in Blackbird
198; 202; 326; 364; 407; 420; 450; 475
♦ 493, 497 T. cupido
509; 529; 538; 545
561 do not get mature plumage soon

10 *3–5m/3u "all|resembles", 5u "Young|acquiring"* **13** *7–9m* **22** *19–20m* **51** *23–26m/26u "they|in"/27u "second"/26w* sexes alike **55** *4–7m, 14–15m/w* sexes nearly alike **75** *24u "both|incubating"* **79** *20u "differs from", 26–27m/26–27u "differ|distribution"* **87** *4–5/10/11m/u⟨colourings⟩, 14–15w* nest in Hole *15/16/17u⟨colourings⟩* **89** *9–17m/10–12w* both sexes change **92** *6–10m* **143** *11–13m/w* sexes different & young differ **144** *5/13–14/15u ⟨colourings⟩, 20–23m* **152** *21–23m* **170** *5–8m, 19–24m* **195** *19u "female|paler"/w* this common to other species *23–28m/23–24w* How are Blackbirds? **198** *8–10m* **199** *20–21u "female|eye"* **202** *23–27m/24–25w* Sexes differ **275** *1–5m, 1–7m* **326** *8–10m* **327** *24–25u "general|with", 27–32m, 29–30u "general|black"/30u "and a broad", 31u "yellowish", 33m* **364** *1–3m* **407** *19–22m* **420** *34–36m* **450** *16u "young|orange", 18–21m/21u* **474** *35u "light|vinaceous", 36u "hind|part"* **475** *1u "neck|blue", 8–9u "lower|red", 16–21m/18u "are", 21–22m* **493** *1–4m/4u "globular|of", 35–37m* **497** *21–24m/23u "bird|the"/24u "air|bladder", 26u "muffled", 27u "refils|receptacles", 31–36m, 38u "than a mile"* **498** *4u "autumn|much"* **509** *18u "graduated|male"/18–20w* so with long-tailed Flycatcher **529** *9–14m* **538** *10–13m* **545** *12u⟨colourings⟩, 13–24m/14u/16u/21u/23u⟨colourings⟩* **560** *25–29m* **561** *32–34m*

vol. 3 SB Vol 3 Audubon
p133 – Young Birds occasionally breeding 4 years arriving at full characters yet sexes alike
p139; 141 do
174 ➾ changes in Beak & legs of Ibis during Breeding season
210; 213; 250; 258; 412, 416, 419; 552; 614, 616
All about sexual Plumage

2 *24–35m/"..."/30–32c∉/34c∉* **133** *18–21m, 21u "are|brown", 22u "covered", 26–27m* **139** *29–33m, 33–36m* **141** *22m, 30–33m/30u "at first"/31u "begin"* **174** *29–34m* **210** *36–38m/38u "sometimes|dress"* **211** *1–2m, 2–5m, 16–18m* **213** *18–20m* **250** *11u "also|speculum", 28u "speculum greyish", 32–34m* **258** *11–14m* **412** *18–26m (Bonaparte)* **416** *10–15m/w* change from *15w* change later **419** *5–7m, 18–20m*◆ **552** *1–4m* **614** *7–10m* **616** *12–13m*

vol. 4, 18 *1–2m* **22** *20–23m* **58** *11–16m* **66** *25–28m, 32–34m* **109** *32–34m* **114** *25–27m, 28–29w* no speculum 117 **116** *4–6u "outer|margin", 31/34/35u⟨colourings⟩* **117** *3–4m* **275** *29–34m* **278** *14–19m* **294** *35–37m* **330** *9–13m* **389** *1–3m* **392** *11–12u"general|black", 28–30m* **424** *32–36m* **466** *33–37m* **470** *22–27m* **507** *3u "destitute|for"/2–6m/w* I was doubtful on this head **518** *21–25m* **564** *21–24m* **566** *3–6m* **599** *6–8u↔, 19–22m/20–21u "The|bronzed", 22u "rump greyish-brown"* **611** *1m, 4–5u↔/2–6m/w* yet plumage acquired slowly

vol. 5 NB 456 Parasitic Cow-Bird
602 Migration
◆601 Noise to cause alarm Q
SB Vol. 5 Audubon
p.11; 63; 176; 183; 210 Jay; 308
Only about Plumage of Sexes
519 Tanagra aestivalis female almost as red as male

10 *31–35u±* **11** *15u "upper|tinged", 16u "loral space" 18u "light greenish-yellow", 30–33m/30u "loral"/31u "black"* **63** *33–37m* **176** *4u "tints|duller"/4–7m/w* other cases **183** *2u "part|forehead", 30–31u "bright|extent"* **210** *10–19m* **308** *10–11u "broad|eyes", 12u "in a rather", 13u "is|pale", 14u "parts yellowish-green", 24–32m* **454** *24–33m* **519** *1–2m* **601** *12–16m/*Q **602** *1–6m*

AUDUBON, John James and BACHMAN, John *The viviparous quadrupeds of North America* New York; J.J. Audubon; 1846 [CUL]
ad, beh, br, ex, gd, ig, mg, no, oo, rd, sp, tm, v

SB1 ❑β 34; 38; 40; 59; 62; 67; 77; 131; 143; 146; 191; 193; 216; 218; 220; 221; 252; 266; 268; 272; 304; 358; 265 var in Teeth
◆ 365 Sheep Q
SB2 ❑β ✍
Audubon's Quadrupeds
34. Florida Rat great diversities in Habits & Instincts in different districts
38 Squirrel, curious manner of avoiding a fall, spreading itself out 40 subject to many animals of prey
59 on terror caused by Rattle-snake – 62 on do
77 gradation in teeth falling out in one genus, permanent & small in another. Rudiments
131. graduated form in Squirrel & in Habits
143 good discussion of parallelism in diff. Lat. of Europe & N. American animals
191. Black Rat became rare in N. Am. as in Europe 193
216 Flying Squirrel with additional small Bone, 218 Habits of, 220
269. Squirrels fighting at rutting season (a little lively animal)
272 On Migration of Squirrels
304. On a Mouse becoming domestic & inhabiting Houses.
358. Pigeon which used to breed in communities now by persecution seldom 2 nests in same tree.–

title page ✍ 1846 **4** *5–7u "marking|numerous"* **34** *4–12m, 25–27m/26u "hollows", 29–30m/29u "clefts", 34–38m* **38** *17–21m* **40** *26–37m* **59** *2–7m* **62** *9–15m* **67** *6–10m* **76** *29–34m* **77** *1–5m* **109** *31–33m* **131** *16–21m* **136** *32u "beneath|ruff"* **137** *1–3m* **143** *21–40m* **146** *12–21m* **147** *4–6m* **191** *23–27m* **193** *1–7m* **216** *30–32m* **218** *21–25m, 29–31m* **220** *1–5m* **221** *19u✍ "three|young", 25m, 25–29m, 33m/u "than|young"* **252** *19–25m* **265** *24–29m* **266** *15–20m* **268** *⇑9–3m* **269** *3–5m* **272** *4–13m* **304** *6–14m* **358** *22–27m* **365** *8–19m/11–12*Q

AVELING, Edward *The student's Darwin* London; Freethought Publishing Company; 1881 [Down, I]

AYRAULT, Eugène *De l'industrie mulassière en Poitou* Niort; L. Clouzot; 1867 [CUL, I]
cs, f

NB 178 & 180 }✐ ⊶Different fertility of ass & Horse when reciprocally crossed.

178 *24–30m, 30m* **179** *1–2m, 4–6m* **180** *16–18m* **199** *2m, 4m, 11m, 19m, 24m* **200** *5m, 6m, 11m*

AZARA, Félix d' *Essais sur l'histoire naturelle des quadrupèdes de la province du Paraguay* 2 vols; Paris; Charles Pougens; 1801 [CUL, pre-B, B?]
beh, br, cc, ds, gd, no, oo, sx, ta, ti, tm, wd, y

vol. 1 NB p3 Tapir striped when young
p136 Puma curls tip of tail when young to spring & purs like a Cat, when scratched.– (Copied)
3 *3–6m* **136** *9–13m/10u "extrémité | queue"/11–12w* purr

vol. 2 SB1 ❐ℜ
p209; 296,298; 306; 319; 332; 339; 349; 359; 363; 364; 368; 371; 376 – 1783–1796
✍ References for <u>my</u> 1st Vol. copied out
SB2 ❑β ✍
296 Date of introduction & increase of Horses in La Plata p298
332 Wild Cattle Horses in Falklands removing snow
339 on Cardoon & Cattle destroying entire pasture
349 Mares which produce mules get old sooner
359 increase of Cattle in Falklands & dates given ✏– Introduced from La Plata
✏ 360 periods at which ♣ Heifers conceive later in hotter country <u>Q</u>
368 Cattle killed by flies
– On natural rate of increase of Cattle in the Estancias
372 Rudiment of Horns in Cattle. descended from Hornless Bull.–

209 *7–11m/w* so with all sexual charact **296** *9u "1535", 18u "1580", 19–20u "trouvèrent | Chevaux", wb* Mule Zain-clairs **298** *14–15m/u "dix | individus", 16–17m* **305** *8m, 15m* **306** *17–22m/19u "zain"/x/w* set *24–26*Q *wb* M Dictionary says what it is Dunn? V. p350 Mules are Zain-clairs **307** *5–6*Q*/6–8m/7u "quatre | Chevaux", 9–10m* **308** *20–26m* **313** *21*Q **318** *18–21m* **319** *1–3m, 6–14m* **324** *1–8m/5–6*Q **332** *3–5m* **333** *6*Q *7–10m/9u "leur sabot est"/10u "poils", 11u "point | blancs", 12u "tous", 13m/u "beaucoup | courts", 21u "Cette | reproduit", 24–25m, 26m* **334** *1–2m, 18u "dans | corne", 24u*↔ **335** *20–26m/24u "Cabril (chevreau)"* **339** *7–10m/10u "anéanti le pâturage"* **349** *24–26m* **351** *7u "zain-clairs"* **352** *9–10m, 13–14m/13u "1546"* **355** *9–11m/10u "1552"* **358** *3–4m, 20–21m* **359** *7–11m, 19–21m/20u "1760", 21u "six mille", 22w* no *wb* 800 – in 15 years – increased to about 6000 → **360** *7–11m/9–10*Q **361** *1–3m/1u "sombre ou rougeâtre"/*Q *9–13m* **363** *8–10m* **364** *5–9m* **368** *1–6m, 9–12m* **371** *8–17m/10–14w* Horns go with Males *16–18m* **372** *8–10m, 10–11*Q✍ *12–16m* **373** *10–13m* **376** *22–25m/1–26w* see life when in S. Amer. see date of Cattle at M. Video p355. Cattle let lose in 1552 **377** *wb* He visited La Plata 1783–1796.–

AZARA, Félix d' *Voyages dans l'Amérique méridionale* 4 vols and atlas; Paris; Denton; 1809 [CUL, pre-B]
beh, ex, oo, sp, ti, tm, ws, y

vol. 1 SB Azara Vol I
p.100 – struggle for Existence.
p.165 – Wasps nests – 215 – worms in navels of Beasts
247 – ✍Young Tapirs striped
375 ✍– Horses
381 ✍wild Dog <u>Q</u>✏
386 ✍– on some species & others rare of same group.–
376 White Horses swim best

100 *3–7m* **101** *17–26m, 19–27m/22u "une | rampant"* **102** *1–4m* **146** ✎*26–27m/26u "tendre | rôtir"* **147** ✎*17x* **165** *17–23m (Latreille)* **215** *25–27m* **216** *2–8m* **247** *2–4m* **373** *2–7m* **376** *5–14m* **381** *14–17m (Buffon), 19–20*Q **386** *19–27m*

vol. 2 S✏ Ch. Darwin
NB O June 1860 Much about Indians
11 *6–16m* **21** *20–24m* **22** *15–18m/x, 19w* see **23** *1–5m/x/4w*✏ Hearn○ **25** *19–22m* **58** ⇑*4–1m, wb* Guanys◆ Guaranys **60** *1–3m* **64** *9m* **92** *22–27m* **93** *14–16m, 21u "des | accouchent", 26–27m* **94** *16–18m, 21–22*Q *23–27m* **95** *2–5m, 17u "guanás"* **105** *12–18m/14u "sourcils | poil"/13–15w* Other Indians do the same **115** *10–15m* **116** *1–2m, 11–13m/12u "déformé | vieillir"* **179** *11–19m/14–16w* more men killed

vol. 3 NB <u>p8</u>
I have not read the rest. except Introduction.–
p33 Caracara makes ♣ Vulture disgorge prey Lestris take advantage of natural instinct to disgorge
8 *25–29m (Buffon)* **33** *19–25m/20–22u*↔

vol. 4 NB p10. Habits of Woodpeckers
327 Habits of Musk Duck
328 Measures of do
I have not read all this Book.–

3 *20–21m/ 21u "parcourent | grimpant", 22u "dominicain | guêpes", 23–24m* **253** *wt* Philomachus cayanus **327** *19–24m* **328** *26–29m*

B., J.P. *An essay on spiritual evolution* London; Trübner & Co.; 1879 [Down]

BABINGTON, Charles Cardale *Manual of British botany* London; John Van Voorst; 1851 [CUL]
fg, gd, oo, sp, t, tm, v
NB1 Tragopogon porrifolius (p. 188)
seeds of ray & centre very different
Verbascum 5 stamens differ in length & structure – in Veronica only 2 stam – in other Scrophs, 4 & of unequal lengths Penstemon
NB2 ⇨ p. 31 Subularia
p. 120 var.; p.301
Abstract
120 Similar vars in allied genera
301 Pinus mughus in Scotch Bogs a var. exterminated by present vars?

viiia *30w* p.65 **viiib** *17w* p148 **xi** *wt* This seems all quite artificial *12w*◆ **xiii** *19u*↔, *21w*◆ **xiv** *3u*↔, *5w* Corolliflorae *20u*↔ **xv** *24u*↔ **4** *28u "in|fields"* **5** *26u "floating", 26w* Nor *33m* **7** *28w* Nor **8** *26–27m, 34w* Nor **9** *26m* **12** *19w* Nor **13** *14w* Nor *27–28m* **14** *14–15w* I. of W. *24w* Nor *27m* **15** *31w* Nor **31** *2m, 13u*✍ *"often|margins", 16w* I. of W. **32** *4w* ? I. of W. **33** *1w* I. of W. *8w* Nor **34** *43u*✎ *"spur"* **35** ✎ *1u "the|short", 9u "spur|straight", 18–19u "spur|end", 34u "cor.|cordate"* **36** *4w* Nor ✎ *5u "blunt|roundedly", 22u "cor.|blunt", 34u "spur|calycine"* **37** *3w* Nor *4–5u*✎ *"spur|calycine", 27w* Hartf **38** *24w* Nor **43** *7w* Nor **44** *10w* Nor **45** *34w* Nor *42–43w* White Nor *43u "l.|hairy", 44u "calyx|lanceolate"* **46** *1u "elongated|erect", 6u "st.|calyces", 6w* Nor *8–9u*↔, *14w* Nor *27w* Nor? **50** *27w* Nor **51** *1w* Nor *20w* Nor **54** *41w* Hartf? **55** *12w* Nor **56** *7w* I. of W. **57** *22w* Hartf *32w* Hartf *39w* Hartf **58** *15w* Hartf **61** *29w* Nor **62** *8w* Nor *15w* Nor *31w* Nor **64** *1w* I. of W. **66** *12w* Nor **70** *3w* Nor, Hartf *18–20w* Hartf Down, *37w* Nor **71** *27w* Nor **72** *17w* Nor **73** *3m, 40w* I. of W. **74** *11m* **77** *7m, 18m, 28m* **79** *37m* **80** *35w* Down **82** *9–13w* Down I. of W. *23w* Down *29–33w* Isle of Wight **87** *38w* Nor **88** *34w* Nor **90** *12w* Nor *40w* Nor **91** *6w* Nor **92** *19w* Mr Norman omit **106** *29w* Nor *36w* Nor **107** *8–9w* Mr Norman omit **112** *12w* Norfolk **113** *32w* Nor **114** *7w* I.W *32w* Hartfield **116** *10–13w* Hartf. I. of W. **120** *28–32m, 32w* I. of W *36–39m, 41w* I. of. W **121** *2–6m, 2–6w* similar vars in allied genera **128** *17w* Nor **143** *32–33w* Down everywhere **144** *27–29w* Down everywhere *32–34w* orchis Bank **145** *3–7w* Below Stonfield Field *12–14w* Down everywhere *33–35w* Down everywhere **147** *33w* Norfolk **151** *14w* Nor *29w* Nor **152** *12w* Nor *35w* Nor **153** *42w* Nor **154** *17w* Nor *35w* Nor **155** *5w* I of W. *28w* I of. W *35w* I of. W **156** *22w* I. of. W? **157** *zb* **158** *zb* **159** *25m, 29m, 33m* **160** *3m* **166** *32w* I. of W. **167** *20w* I of W **181** *10w* I of W. **182** *16–24m* **183** *22w* I of. W **188** *9–10w* I of. W. *28w* I of. W. **192** *25w* Mr Norman omit **203** *33w* Hartf. **206** *28–29w* Hartf **213** *8–11w* Nor. I of. W *29w* Nor **215** *32w* Nor **217** *30w* Hartf **221** *5w* I. of W. **222** *11w* Nor *35w* Nor **223** *10–17w* I think my plants clearly this species *40m/w* Nor **224** *16w* Nor **225** *21w* Nor **231** *26w* Nor **232** *38w* I.W **233** *12–15w* I of Wight **234** *29w* Nor **235** *1w* Nor **236** *3–4w* Hartf *30w* Nor *41w* Nor **237** *38w* Hartf **238** *11–12w* I of W. *40w* Nor **239** *5w* Nor *12w* Nor, *24w* Hartfield **240** *20w* Nor **241** *37w* Nor **244** *34–35w* 2 vars **245** *1m, 6–7m, 37–38w* 3 **246** *4–5m, 23w* Nor **248** *22–27c, 31w* Nor, *38w* Hartf **249** *7w* Nor *38w* I of W **250** *40w* Nor? **251** *5w* Nor, *27w* Nor *39w* Nor **252** *25w* Hartf **253** *18–22c* **255** *29w* Hartf **256** *4w* Nor *28w* Nor **259** *5w* Nor *38w* Nor **260** *1w* Nor *8w* Nor *18w* Nor **275** *33w* Nor **277** *22w* Nor **283** *9w* I of W. **285** *29–33m, 24–25w* I of W. **286** *14w* Nor **288** *26w* Mr Norman omit **301** *26–30m* **302** *22w* Nor **303** *7w* Nor **306** *37w* Nor **307** *6w* Nor **308** *15w* Nor *44w* Nor **310** *7w* Nor *9w*◆ Down *12w* Hartf *16w* Nor *18w* Down *25w* Nor **312** *9w* Nor *28–31w* Hartf I. of W. *40w* (Var. of dat) **313** *14w* (var of d) *26w* I of W **322** *3w* Nor **328** *4w* Hartf **335** *22w* Nor **336** *12w* Nor **353** *31w* Mr Norman omit **356** *18w* var **358** *12m, 25m* **360** *17–18w* omit **365** *40–41w* ? var **366** *33–34w* var **369** *24w* var *34w* var **372** *10u "flowered|a", 10u "Glumes nearly", 24a/w* 1–flowered **373** *13u "Fl.|hairs", 26–27u "1|and", 28u "2|of", 39u "1-flowered"* **374** *4u "2|fl."* **375** *11–12m, 21w* water **377** *4u "one|flower"* **378** *26m* **379** *21–22m, 39m* **380** *17–18m, 20–23w* Down Ch Lane **381** *31–34w* Honeygrove Jul 53 **382** *22–23m, 30–32?* **385** *24–25m* **386** *9–10w* Hayes *16–19w* Larch wood *41–42m* **387** *21–22m, 40–41m* **388** *7m, 13–14m, 24–25w* Hartfield *32–33w* orchis Bank **389** *3w* Down *10w* =Molica *11w* Hayes *39w* Down **390** *42w* Honeygrove **391** *33w* passim *39–40w* passim **392** *5–7w* Larch wood, *14w* wall *44m* **394** *38–39m* **395** *1m, 11–12m, 38m* **396** *31–32w* Honeygrove *33–34m* **397** *8–9m, 24m, 30m, 38m* **398** *31–32m, 42m* **399** *40m* **400** *13–14?, 21m* **401** *6m, 15m* **402** *17–18w* Beckenham *18–19m, 30–31w* Hartfield *wb* Mr Norman end here **403** *wt* Mr Norman end here

BAERENBACH, Friedrich von *Gedanken über die Teleolgie in der Natur* Berlin; Theobald Grieben; 1878 [Down]

BAERENBACH, Friedrich von *Das Problem einer Naturgeschichte des Weibes* Jena; Hermann Duft; 1877 [CUL, I]

NB Skimmed
℘

BAERENBACH, Friedrich von *Prolegomena zu einer anthropologischen Philosophie* Leipzig; J.A. Barth; 1879 [Down, I] ℘

BAGEHOT, Walter *Physics and politics* London; Henry S. King & Co.; 1872 [Down, I, S]

57 *6–28m*

BAILDON, Henry Bellyse *The spirit of nature* London; J. & A. Churchill; 1880 [Down, I]

BAIN, Alexander *The emotions and the will* London; Longmans, Green & Co.; 1865 [CUL]
beh, h, sl

SB ♦
☞ Bain Emotions & Will
p.5.6 to under qu.
p.111; 119
127, 129 Expression
176
Laughter 247
Moral sense
254 Moral sense
Q✍ 267 481– good to quote
269 – social instinct apparently denied by Bain
B. seems to think moral sense acquired during life-time – seems to give too deep a feeling for this wd never resist Hunger, Revenge or lust.–
277; 279; 283; 289; 290; 308
p 270 Mohamedan ♣ woman covering her face
♦✍ 283 imitation of external government !!!
284 obedience (Monkeys slapping their children)

viii *8–10m, 9u "Feeling | misery", 32–33m, 32u "Will"* **ix** *17–20m* **x** *26m* **xi** *13m* **xii** *6m* **xiii** *20–21m* **xiv** *33m* **xv** *23m* **xxv** *30m* **5** *23–26m* **6** *wt* The love of a mother for her child is a strong emotion, but this is hardly shown by any action or expression, but ready to lead, if her child requires assistance, to energetic or heroic actions. *2–37w* a mother may be feeling the warmest love for her child, & yet how is it exhibited? When poets ♣ speak of green-eyed jealousy they must find it impossible to give ♣ actions & plain characters. Perhaps Bain calls love a Sensation & not emotion.– → No p.37 *9–13m, 26u "secondarily automatic"* **7** *31–33m* **8** *12–15m* **9** *12–13m, 34–35m, 36–37m* **37** *17–21m* **54** *15–30m, 29m* **55** *5–15m, 5–9w* to make appearance dredful **56** *28–31m* **58** *28–34m* **65** *19–22m* **67** *32–37m/w/wb* Dog when going to fight; Birds erect plumage; Lynx sets up its back & spits **73** *19–27m* **111** *32–37m* **119** *32–37m/→* **120** *6–9m, 11–12m, 14–17m* **127** *25–28m* **128** *21–24m* **129** *26–28m* **176** *34–37m* **247** *7–29m, 35–37m/→* **248** *10–13m* **249** *7–12m, 13–14m, 32–33→* **250** *6–10m* **254** *26–29m* **255** *1–2m, 5–11m* **267** *1–5m* **268** *26–29m* **269** *4–6m, 8–9!, 8u "rational appreciation", 22–28m, 29–30→* **270** *7–11m, 30–34m, 36–38m* **271** *7–11m* **277** *10–14m, 10–11w* But what the importance **279** *12–14m, 13u "to | pig"* **283** *10–18m, 20–23m, 22u "performance | social", 26–29m, 36–37→* **284** *1–4m, 15–17m, 25–30m* **285** *3–5!, 4–7m* **287** *5–11m* **289** *27–30m, 37–38→* **290** *12–18m* **308** *1–14w* so the associated state is advantageous *4–7m, 10–14m, 12u "the blood", 34–35m* **309** *7–13!* **481** *18–22m*

BAIN, Alexander *The emotions and the will* 3rd edn; London; Longmans, Green & Co.; 1875 [Down, card from author]

NB 86
xiii *7m* **xvi** *13m* **xvii** *18w⟨not CD⟩* **86** *32–39m* **305** *3–5m, 3–4u "initial | generally", 30u "play | accord"* **309** *15–20m, 16u "central brain", 17u "discharge", 17u "solitary streams"* **313** *23m, 23u "spontaneous workings", 30u "two", 32u "Emotional", 33u "Volition"* **314** *2–6m, 5u "selection", 16u "why then", 17u "doctrine of", 18u "commencement", 25–28m, 25u "two views", 30u "think it", 31m, 31u "primordial source"* **315** *23–25m, 23u "accidentally | pleasure"*

BAIN, Alexander *The senses and the intellect* London; Longman, Green, Longman, Roberts and Green; 1864 [CUL]
beh, h, phy, t

SB ♦
p 12 Intellect & size of Brain
50 can this bear on sobbing
52 Expression
96 do – theory of –
121 Expression of Man pain; ✎ & such movements wd get mingled with true expression of distinct emotions

152. ♦ effect of imagination on the body admirable 1
225 Muscles of eyebrows
264 Expression
274 a child twisting tongue about in writing, perhaps connected with idea of speaking.–
277 V 279 Expression; 288 do; 292–297 do it is expectation of pleasure when♦ (a dog wags tail before food given him & while eating in quiet) – so when scratched
332 association
411 The mind is never intently concentrated on a merely pleasant idea
626 expression
Bain the Senses & intellect

50 *28–32m* **52** *37–40m* **53** *27–30m, 27–29w* explains frowning **96** *29–41m, 31–34"..."/c/u⊄* **121** *19–32m, 36–37→* **122** *2–6m, 10–13m, 27–30m* **152** *33–36m* **153** *9–11m, 10–11w* 169 odours **225** *8–18m* **264** *12–14m, 34–37m* **274** *⇑4–1m* **277** *36–39m* **278** *"sighing", 12–14m, 15–19m, 34–36m* **279** *14–16m, 16u "excitement | trembling", 17–19m, 17–18w* Muller, *19m✎, 23m✎* **280** *16–22m* **281** *1–9m* **288** *wb* In another place he adds *30–37m/30–33"..."/31–33m⊄* **292** *1–26w* general effects of pleasurable, exciting & painful depressing (except at first) hardly in young child. *18–25m* **293** *4–9m, 21–23m, 24–25m, 24u "specific", 32–33m/→* **294** *5–27m, 11–14w* oh oh *18–20m* **295** *28–29m/→, wb* Curious that Dog has acquired bark of pleasure & another bark of anger, & another of demand to be let in at door **297** *wt* sobbing is convulsive inspiration *wt* because prolonged screams *1–2m, 16–19m* **332** *14–19m* **411** *8–10m, 10u♦, 8–14w* crying & concentration. Mem problem or understanding a difficulty **626** *41–45m* **627** *8–11m, 15–17m, 20–22m, 26–29m, 31–33m, 34–37m, 37–45m, 42u "features | pre-eminence", 46m/→* **628** *6–9m*

BAIRD, William *The natural history of the British Entomostraca* London; The Ray Society; 1875 [CUL]
ci, no, phy, sp, t, tm

NB1 Cirripedia p.50; p.74; p.144; p.248; p.250; p.253
p.265 circulation
p.303 XX cementing organ
NB2 Sp Theory; p85♦; p189 Rate of Increase in Cyclops; ♦Synopsis Brit Mus 1842; ♦ p.244 Diaptomus with worm-like body full of Spermatozoa.–; ♦ Apus Nebulia Chirocephalus Cyclops Canthocamptus Caligus Lerneocera

50 *14–17m, 29–34m* **74** *10–15m* **81** *32m* **85** *34–38m* **127** *9w* Holwood **144** *12–15m* **154** *21w* Holwood *31–33z* **187** *11–14m* **189** *33–34m* **248** *8–11m* **250** *9–11m* **253** *27–32m* **265** *21–24m* **303** *9–12m* **321** *4m, 38w* 38

BAKER, J.G. *Elementary lessons in botanical geography* London; Lovell, Reeve & Co.; 1875 [CUL, I]
cc, gd, gr, ti

NB 46 – Alpine plant on Tropical Mtains
53 – Heat-lovers & cold-fearers
90 – plants which have become widely naturalised
99 – certain wide ranging plants
102 – relationship of S. Africa & S. America & latter with Australia, good
109 – independent of present geographical features
46 *16–26m* **53** *8–13m* **90** *9–21m* **99** *21–30m* **101** *10–19m* **102** *8–12m, 22–27m* **103** *6–10m, 10–14m, 23–27m* **106** *6–11m* **109** *17–24m*

BALFOUR, Francis Maitland *A monograph on the development of elasmobranch fishes* London; Macmillan & Co.; 1878 [Down, I]
℘

BALFOUR, Francis Maitland *A treatise on comparative embryology* 2 vols.; London, Macmillan & Co; 1880 [Down]
⟨marks by FD⟩

BALL, Valentine *Jungle life in India* London; Thos de la Rue & Co.; 1880 [Down]

NB 156, 455
℘

BARCLAY, John *An inquiry into the opinions, ancient and modern, concerning life and organization* Edinburgh; Bell and Bradfute; 1822 [CUL, pre-B, S] ℘

BARKER-WEBB, Philip and BERTHELOT, Sabin *Histoire naturelle des Îles Canaries* Vol 3, part 1 *Géographie botanique* Paris; Béthune; 1840 [CUL]
gd, gr, is, no, sp, wd

NB Marked Chapter on Distribution
title page *wt* Barker-Webb **5** *7–9m, 9–10m, ⇑15w* 14. fam 29. spec *⇑12m/x/u "variété | autres"* **6** *16m, ⇑7–3w* 17 peculiar? **7** *8–9m* **8** *12–15w* peculiar species in W. group. *⇑7–6m, ⇑3–1m* **9** *⇑8–2w* broken nature of country species abundant in one isld rare in another 1200 ft of = difference of station = *⇑1m, zb*

12 *7–8m* **16** *4m* **17** *10m, 12m* **22** *11–12m/w* Isolated plants – do not know yet, whether indigenous species or not.– *16–17m, 19–20m,* ⇑*3–1m/w* X does this mean plants found nowhere else? Galapagos♦, ⇑*2x/u "espèces* | *propres"* **23** *1m, 9–13w* So then List of plants on Teyde elsewhere? **24** ⇑*5u "observations analogues",* ⇑*14–11m/*⇑*14x/u "Canaria"/*⇑*13u "représentent",* ⇑*10–6w* I suppose ♣ plants peculiar (?) to high parts of the Canary **25** ⇑*8u*♠*/*⇑*7u*♠*/m/w* 7,234 ft Palma **26** *1–2m* **32** *9–10m, 12–13m/w* (a) *19–20m, 23–24m,* ⇑*15–13m,* ⇑*4–2m/w* (a) Does this show course of immigration? **33** *1–2m, 3m/w* whether peculiar or not **37** ⇑*13m* **50** *12–14m,* ⇑*6m* **51** *1–3m, 14–15m/w* – See Hooker's list of Plants **58** *"Plantes alpines".w* Is there any fuller list of Alpine plants? **66** *7u "Caldera* | *Palma", 16–18m* **68** *12–14m* **69** ⇑*18–15m,* ⇑*5–3m* **70** ⇑*9–8m* **71** *5–7m* **72** *9–10m, 18–19m* **74** ⇑*10w* Salvia Canaries ⇑*4–1m* **75** ↕*m, 11u "buissons", 11–12u "provenant* | *graines", 15u "facies",* ⇑*9!/u "chétif"* **76** ⇑*9–8m* **78** ⇑*3–1m/w* must read **79** *3–4m,* ⇑*12–1m* **80** *2–3m, 4–5m* **82** *13–15m/w* not from cultivation **95** ⇑*2–1m/w* important Read **97** ⇑*2u "quatre* | *bien"/m/w* different stations **103** *12–13m* **104** *8–10m* **122** ⇑*13–10m,* ⇑*6–4m* **123** ⇑*1m* **124** *6–21m* **167** *10–17m* **175** ⇑*3–2m,* ⇑*1w* Galapagos?

BARRAGO, Francesco *L'Uomo fatto ad imagine di Dio fu anche fatto ad imagine della scienzia* Cagliari; Corveso di Sardegna; 1869 [Down, I]

title page *wt ⟨translation of title⟩* **11** *w throughout page ⟨translation of page⟩*

BARRANDE, Joachim *Acéphalés* Chez l'auteur, Prague; 1881 [Down, I to CD erased and replaced by FD] ℘

BARRANDE, Joachim *Brachiopodes* Chez l'auteur, Prague; 1879 [Down, I] ℘

BARRANDE, Joachim *Céphalopodes* Chez l'auteur, Prague; 1877 [Down, I] ℘

BARRANDE, Joachim *Defense de colonies* Chez l'auteur, Prague; 1870 [Down, I] ℘

BARRANDE, Joachim *Distribution des Céphalopodes* Chez l'auteur, Prague; 1870 [Down, I]

3 *21–25m* **15** *11–12m, 13–15m* **19** *25–27m* **111** *24–29m* **117** *32–38m* **121** *31–35m* **137** *15–20m (Salter)* **163** *19–23m, 40–43m* **164** *5–9m* **165** *7–13m, 14–15m, 26–28m, 26–27m, 29–33m*

BARRANDE, Joachim *Trilobites* Chez l'auteur, Prague; 1871 [Down, I]

BARTON, John *A lecture on the geography of plants* London; Harvey and Darton; 1827 [Down, pre-B, S]

4 *20–26m* **7** *4–9m, 5w* Oak **22** *13–18m* **27** *4–5m* **30** *12–23m* **31** *wt¢¢, 22–25m* **32** *1–3m* **36** *1–13m* **38** *13–17m* **39** *14–26m (Humboldt)* **41** *6–11m*

BARY, Heinrich Anton de *Die Mycetozoen* Leipzig; Wilhelm Engelmann; 1864 [Down] ℘

BASTIAN, Henry Charlton *The beginnings of life* 2 vols.; London; Macmillan; 1872 [CUL, I]

cc, che, ct, ds, fg, h, hl, phy, sp, t, v

vol. 1 NB xi; xii; 160; 167 on Cellular Theory; 215 do.; Nothing for Man
xi *17–31m* **xii** *wt* But are these supposed Heterogenic changes due to Environment? *1–20m, 1–17w* can this throw light or accord with the variability of higher form, as they are compounds of separate units? **160** *16–28m* **167** *23–28m* **215** *10–16w* plastide Hackels term best, *25–29m* **316** *25–28m* **433** *19–22m* **456** *1–3?* **Catalogue** ℘

vol. 2 NB1 Nothing for Descent of Man
NB2
♦lix variability of algae
♦lxii variation
♦lxxxii variation in relation to conditions in Infusoria Cohn
♦31 Drosera
♦79, 88, 596 Pangenesis
255 objection
259 variation
377 Drosera
I think there is a tendency to plasticity var. but not proved – 594 error on my views
597, 599 variation
604 I admit so far
608 I think I am in error
Frequency of generalised forms in old times quite opposed to independent origin of the diverse orders of same class

1 *14z* **31** *2–7m* **79** *13–23m* **88** *4–27m* **255** *15–30w* Vorticellae; He omits altogether the conditions; Why not eggs in the infusion.– I do not yet see the reason– **259** *12–26m* **261** *3–9m* **377** *5–29m* **594** *3–6m, 4u "heterogeneous"* **596** *24–31m* **597** *2–8m* **599** *20–24m* **604** *wb* like polarities of crystals *1–4m* **608** *14–23m* **lix** *20–30m* **lxii** *13–20m* **lxxxii** *2–34m*

BASTIAN, Henry Charlton *The brain as an organ of mind* London; C. Kegan Paul & Co.; 1880 [Down]
pat

NB 188 Douglas Spalding; 213 Blind Horse – self; 216 my Horse – Isle of Wight
213 *14–17m* **215** *30c/w∉*
℘

BASTIAN, Henry Charlton *Evolution and the origin of life* London; Macmillan & Co.; 1874 [Down, I] ℘

BASTIAN, Henry Charlton *The modes of origin of lowest organisms* London; Macmillan & Co.; 1871 [Down, I] ℘

BATE, Charles Spence *Catalogue of the specimens of Amphipodous Crustacea in the collection of the British Museum* London; by order of the Trustees; 1862 [Down, I] ℘

BATEMAN, Frederic *On aphasia, or loss of speech* London; John Churchill & Sons; 1870 [CUL]
beh, h

NB1 Descent of Man p.27; 31; 53; 100, 102; 109; 110; 112 Expression; nodding & shaking Heads; p27 Concepts
NB2 p111 Gartner
27 *4–5u "fell | door", 15–19m, 16–17u "memory | substantives", 18–24w⟨CD?⟩* one case of only the infinitive mood being retained *29u "is | cut", wb* How does this bear on concepts? **31** *2–5m* **53** *12–16m* **100** *9–10m, 17–20m* **101** *17–18u "defect | language", 19–22m* **102** *1–2m, 3–5m, 16–18m, 19–21m* **104** *8–11m* **109** *22–28m* **110** *4u "commonly unaffected", 6–15m, 12–15m, 12–15w* 2 cases *16–21m* **112** *3–8m*

BATES, Henry Walter *The naturalist on the river Amazons* 2 vols.; London; John Murray; 1863 [CUL, I in both vols.]
beh, br, cc, cr, f, gd, h, ig, mm, no, oo, phy, rd, sl, sx, tm, v

vol. 1 NB p251
SB1 ❐ℜ vol.I
p. 20; 23; 30x gradn in worker ants; 52; 55; 68; 99 monkeys not breeding; 102; 182.–analogy of Moth & Humming Birds; 193 sterile in confinement; 207; 210; 252; 254; 258–262; 304; 312; p 53 Sipo Matador
SB2 ✍ ⟨*not CD*⟩
Bates Amazon vol 1
p. 20 on tropical insects not being more beautiful & on differences in sex.
23. on worker ants of 3 kinds
27. tunnell under river – 30 gradations between workers
52 Male & female butterflies haunting different stations.
55 competition in the Tropics.
68. Trees with buttrefres.
102. 700 butterflies within an hour's walk
182. analogy between Sphynx moth & humming birds.
207 widely different insects imitating sand in colour.
210 insects of same family having widely different habits.
252 male crickets being musical to attract female.
254 a kind of thrush with nest lined with mud
258–262. discussion on variability of butterflies & on mimetic butterflies.
304. local vars. of butterflies
312. Ditto –

20 *7–19m, 20–21u "almost | only", 21–26m* **21** *2u "more | coloured", 3–31m, 3u "females | often", 5u "tropics", 6u "between the", 7u "any temperate"* **22** *2–10m, 18–22m* **23** *8–10, 31m* **24** *10–14m* **27** *13–16m* **30** *8–12m, 19– 22m* **31** *26–29m* **51** *23u, 29–31m* **52** *2–12m, 4u "less dense"* **53** *7–14m, 25u "fig order"* **54** *1–31m* **55** *21–29m, 31→* **56** *18–24m* **68** *14m, 15–21m* **69** *2m* **99** *10–16m* **102** *21–26m* **182** *10–16m* **183** *5–8m* **193** *2–6m, 2–3u "paca"/w* 2 Rodents p. 202 *9–10m, 11–13m* **207** *23–31m/→* **208** *22–27m* **210** *13–30m* **250** *23–26m, 29–31u "Locustidae"/w* probably Gryllidae of Welland○ **251** *1u "Acridiidae", fig.w* toothed lobe left wing **252** *11–15m, 15–27m, 31a "crickets"* Achetidae *wb* Cicadidae again different **253** *1–2m, 4–5m, 8–9m, 18–24m* **254** *15–20m/w* a kind of Thrush **258** *25–30m* **259** *fig.→* **260** *5–9m, 14–19m, 28–31m* **261** *22–27m* **262** ⇑*11–1m* **263** *4–7m, 14–17m, 21–26m* **304** *22–31m* **312** *18–30m* **313** *1–8m*

vol. 2 NB 238 Toucans; 341
SB1 ⟨*not CD?*⟩ 39 Palm; 49 Tonka bean: fruits on stems; 51 Palm; 53 General descrip; 169 Bulging palm; 217 Fruit conspic ripe; 218 Gulielma palm; 237 Eriodendron; 263 Turtles eat fallen fruit
SB2 ✍ ⟨*not CD*⟩ Bates vol 2.
35 a young savage with instincts of finding his way.
44 Bees using hind legs to collect mud & using gum.
46 Parasitic fly – like bee.
61–70 – neuters of termites.
228. butterflies of several sp. males living in

sunny places & females in wood
✏ ⟨*CD*⟩ 307 Short-tailed monkeys, yet arboreal.–
✍ ⟨*not CD*⟩ 313 range of monkeys separated by a river
347 butterflies with males 100 times more numerous than the female.
347 range of butterflies depending on wind
351 gradation in workers of ants
364 great difference in the castes of worker ants.
✏ ⟨*CD*⟩ 204 man essentially same in mind
284 strong sexual characters. <u>Umbrella Bird</u> rudiment in female
349 tubes for caterpillars
357 gradation of instincts
SB3 ❐ℜ
35; 44; 45; 61–to 70 Termites; 113 sterility; 128 expression; 159; 162 God & Man; 194; 219 Cultivated fruit – by Natives; 228; 313; 347; 351 gradation in workers; 364 ants; ♣ close mouth & part front of tongue forming the palate & open mouth suddenly & this makes the click – open mouth sign of surprise.

35 *1–9m* **44** *9–12m* **45** *13–23m, 29–30*→ **46** *8–20m, 18–23m, 23–27m* **51** *3–5m* **61** *7–14m, 15–18m* **65** *3–8m, 28–31m* **66** *5–9m, 19–22m* **67** *17–27m, 28–31m* **113** *4–12m* **128** *29–31m, 31u "to | a"* **159** *20–29m* **162** *28–31m* **178** *5–9z* **194** *16–29m* **197** *10m* **204** *1–9m* **219** *5–12m* **228** *4–9m, 9–12m* **237** *3–5m* **284** *12–18m* **307** *12–28m* **310** *24–29m, 24–26"...", 30–31z* **313** *17–31m* **338** *21–23m, 22u "seven | more"* **339** *22–23m/u "deficiency | used"* **341** *7–11m, 15u "considered | instrument"* **347** *4–11m, 27–30m* **349** *22–31m* **351** *22–26m, 27–30m, 30–31*→ **352** *21–32m* **357** *20–24m, 20–22w* is it true, stinging **364** *14–17m* **365** *15–20m, 22–26m* **419a** *20m, 29m* **419b** *1m, 12m, 26m, 31m* **420a** *8m, 9m, 19m, 29m, 35m* **420b** ⇑*3–1m* **421a** *1m, 6–9m,* ⇑*2m* **421b** *16m, 22m, 23m, 25m, 31–37m, 40m, 40m* **422a** *1–4m, 9m, 10m, 14m, 27m, 30m* **422b** *20m* **423a** *1–3z, 16m, 22m*

BAXTER, Jedediah Hyde *Statistics, medical and anthropological of the Provost-Marshal-General's bureau* 2 vols.; Washington; Government Printing Office; 1875 [Down]

BEALE, Lionel Smith *On the structure and growth of the tissues and of life* London; Robert Hardwicke; 1865 [CUL]
ct, phy, t

NB Used for pangenesis and of no other use

10 *24–30m* **21** *wt*♦ cell contents *1–5w* or as some♦ several authorities object dispute♦ the reject○ the present○ ex◗ion of cells, Beale's term been very useful *14–18u±, 21u "Formed | matter", 29–30m* **25** *27–30m, 29–30u "composed | tissue"* **26** *3–7m, 18–20m* **27** *23–28m, 27u "lastly | surface", 28u "of | and"* **28** *3–7m* **29** *12–14m, 13–14u "comparatively | matter", 24–27m* **31** *3–21w* says before it has become completely passive *19–21m* **34** *wt* the germinal matter in a fully developed muscle must be formed or modified by the development of the muscle. **36** *11–13m, 12u "is | or"* **37** *19–21m* **62** *wt/1–21w* says the nuclei or germinal matter of the various tissues are ♣ continually forming *12–15m, 12u "Cells | parts"* **63** *21–23m*

BECHSTEIN, Johann Matthäus *Gemeinnützige Naturgeschichte Deutschlands* 4 vols, Leipzig; Ernsius; 1801–5 (2nd edn), 1793–5 (1st edn) [CUL]
beh, br, cc, ch, cs, dg, ex, f, fg, gd, h, he, hy, ig, in, is, mg, mn, no, oo, or, pat, rd, sp, sx, ti, tm, ud, v, wd, y

vol. 1 NB Blumenbachs HandBuch of Nat Hist
17♦; 26 Book; 227, 228 – do.; 232–6 Horse; 241 Canines varying
275; 285,6; 294; 300; 309; 310,12; 324; 358; 362,5; 378; 404; 425; 432; 434; 448; 457; 470; 491; 505 to 508 to 536; 546 – Dog
It wd be good to investigate the 4 teeth of upper jaw of Dogs to see about abortion
SB1 ❐ℜ
Vol I Bechstein – V End of Book for early references
p548 to 579 to 702
♦ p609 to 627; end; p.653
795; 850; 932; 950; 984; 1032; 1046; 1078–83,1084. Squirrels; 1095 Hare; 1119 Rabbits to p.1135–
A Calendar at end with periods of coupling of all wild animals.
SB2 ❑β
p241 <u>Mares</u> Eye Canine teeth either absent or very short – sexual & rudimentary characters variable
(Bechstein Vol I)
p 294 Hinney more like Mother (ie Ass) then Horse, but ears Horse-like <u>Q✍</u>
p 309 Nine Breeds of Cattle in central Europe
310 Pale-coloured cattle more plagued with Flies then darker colours
359 She Sheep have horns smaller or none
362 In Hornless sheep some have small loose Horns

BECHSTEIN, DEUTSCHLAND

379 Certainly Ram gives fleece
432 2 Breeds of Chamois inhabiting different heights
505 Wild & tame Pigs produce fertile offspring Q
508 Var. of front teeth in Pigs N.Q
530 Sort of pad defending Boars
536 Many wild Pigs die in Hard winters & in very dry summers.–
548 Bitch 5, seldom 4 Q, mammae on each side – Iceland Dogs different voice ⟨*u*✎⟩
574 Newfoundland Dog – skin between toes – Not in Newfoundland, when discovered.
584 time of gestation
638 Stutz – Dogs are easiest crossed with Foxes Q✍
654 Cats with wavy hairs N.Q
663 Astonishing increase of mice in Isld of Placida off Naples, when Cats destroyed.
682 In Lynx tufts of hair 2 inches long
795 Ferret procreates quicker than Polecat, ● parent
950 Black & Brown Rat cross in nature Q
1032 Marmot or Arctomy inhabit only highest alpine height of Europe
1084 Squirrels in same nest, one finds 2 colours, when parents of two colours
1095 variation in upland & lowland hares
1119 Hares & rabbit will not breed after many attempts made Q✍
1123 Rabbit can produce in 4 years 1274, 840
1133 Grey♦ Rabbits turned out after some generations assume grey colour

26 *⇑2–1m/wb* On variation **227** *⇑5?, ⇑2?/x/u "deutscher|ausländischer"* **228** *3m* **233** *6u "dünne", 14u "Der|ist", 15u "Ohren|lang", 16u "Mähne dick"* **234** *1–2m/u "vorzüglichsten|Andalusien", 5–10m/w* He means x – Hunter cross *13u "Yorkshire", 17u "die|haarig", ⇑3u "Tigerpferde"* **235** *9u "Calabrien", 10u "Apulien|vorzüglich", 15u "Polnischen|gleich", ⇑3u "dass|abnützen"/wτ* **236** *2–7m, 10w* Pony *18u "Holsteinische", 19u "Mecklenburgische"* **241** *⟨err. printed 235⟩ 4u "Hundzahne", 6–7u "fehlen|kurz", 4–6m/w* Fem♦ Mares Eye teeth absent or small: variable Owen says absent **275** *⇑5m/u "von Natur"* **285** *wt* There does not appear to be race of asses in each country. *4–8m/w* Arabia Donkey very fine *8u "glattes", 12–18m/w* smallness owing to climate (Peacocks do not flourish) **286** *⇑8–5m/w* various colours **294** *12u/a "mehr mütterlich"* i.e. Ass *12–13w* sometimes much mishapen **300** *⇑5–1m* **309** *zt, 1–2m/wt* 9 Central Europe Kinds of large Cattle *4u "übrigen Deutscher"* **310** *10–16m/w* These colours more plagued by Flies (I wonder if true) might bring in **312** *⇑3–1m* **324** *15–20w* Change Bull to prevent inter se **358** *5–7m/u±* **359** *⇑14–13m, ⇑9–8m/w* Horns in Female fail or are smaller **362** *1–2m, 13–17m/w* Q Hornless but sometimes appear, & are then not well fixed.– **365** *8u↔/m/w* Hellenius case **378** *12–14m/w* Sheep with least mark often bring quite dark lamb– like Fox's fact **379** *3–10w* Certainly Ram gives wool most strictly heredetary *⇑13–9m/w* not interbreed **404** *4–6m* **425** *6–7m/7u "lang herabhängenden", 16–17m* **432** *⇑11–1m, ⇑10–9u "klein|höchsten", ⇑7u "obersten Theile", ⇑5u "dunkelbrauner", ⇑2u/wτ, wb* might be 2 species **433** *3–4u "Feld|Bershirschen"* **434** *14–15u "Pyrenäischen|Gebirge", ⇑6–5m/u "Steinböcke|mittlern"* **448** *15–20w* Fallow Deer various colours **449** *⇑8–4m* **457** *⇑14–10m* **458** *7–8u "gemeinisch|sind", 6–14m/w* Q differences according to habitation **470** *4–6m* **491** *⇑3–1m* **505** *11u "abgerundete", 12u "zugespitzte", ⇑7–1m/w* Pigs wild & tame breed together & offspring fertile Q Q✍ **507** *⇑8u "vier", ⇑7u "etwas"* **508** *4–6m/w* front teeth vary; sometimes 2 more in upper sometimes 2 more in under *5u/wτ* **509** *⇑4–1m/w* Breeds *⇑4–1u±* **510** *11–12u "Die|Schweine", 16u/wτ* **517** *6–15w* white sows frequent 15 weeks speckled 18! Q *14u "zweymal"/w* breed twice **529** *5–7w* Wild Boar Dark colour *9u↔, 12–13w* short more projecting ears *15u "hängende Schwanze"* **530** *10–15w* Black hairs have brownish tips *⇑13–5[...]* **534** *⇑7–5m/o, ⇑4u↔/w* Twice a year on Heat **535** *wt* Wild Sow 18–20 weeks *3u "fünf|zwölf"* **536** *⟨err. printed 436⟩ 9–10m, 12–16w* Many die of hunger in hard winters *14u "doch|für", 16u "sechs|acht", 19u "zuweilen|aussterben"* **546** *8–16m/w* Believes in multiple origin of Hound **548** *1–2m/1u "nur|Brüste"* **549** *5u "den|murrend"/w* voice different. **551** *1–6w* Fox like dogs like our Spitz **554** *6a "2"* subspecies Mastiffs *⇑12–1w* Big thick upturned snout; falling chops; slaving mouth; small hanging ears; Breed had flat long neck & thick – smooth short hair **558** *6w* Pug(?) **559** *⇑1w* 3d subspecies Hounds **560** *4–12w* Head round with ridge Ears very long – Body long – claws on after-toes **568** *1a "4"* Spaniel♦ Poodle **569** *8w* Spaniel **572** *8–10w* hairs like Lion *15–16w* Danish Dog **573** *⇑2w* Newfoundland **574** *5–7m/w* Q skin between toes *14–15m/w* not there in 1622 *15–16w* Greyhound **576** *1–2w* Italian Greyhound **578** *⇑5–4w* Terrier **579** *⇑2–1w* Skye Terrier **584** *⇑6–5u "neun|Wochen"/w* Wolf p.617 *wb* 63–70 days **609** *⇑10–9m/u "jeder|Backenzähne",*

⇑*8–5w* teeth different from Dog **617** ⇑*12w* 77 days ⇑*11–10m*/⇑*10u "2 | trächtig"*, ⇑*9–5m*/⇑*8u "selbstgegrabenen Loch"* **627** *6u "Spielarten"*, *9–10m/u±*, ⇑*9–5w* Q tip of tail variable ⇑*3–2m/u±* **628** *3–8m* **638** ✍ *5–7m/w* Q **653** ⇑*11–8m/w* differ in habits ⇑*11–8w* degenerate easily ⇑*6m/wb* Tortoiseshell! **654** *6u/wτ* **663** ⇑*10–3m*, *wb* Extraordinary increase of Mice in Isld of Placida when cats all destroyed.– *674 15m/u "bringt | blinde"* **675** *4–8m* **682** *5u "zwey Zoll"/w* ear tufts 2 inches long **702** *5–12m/!* **786** *4u "gewöhnlich | selten"* **795** ⇑*11–7w* more than Iltis wild MardO on prowlO p786 **850** *2–4m, 7–8m, 13–16m* **932** *11–14m/11u "zweyen Jahrhunderten"*, ⇑*2m/u*↔ **950** *9–11m/w* Q Black & Brown Rat ⇑*9–5m/w* Q **984** ⇑*14–7m/w* Water Rats like Snakes inhabit dry & wet places **1032** ⇑*11w* Arctomys Marmot ⇑*10–9m*, ⇑*8–4m* **1046** ⇑*4–1m* **1047** *3–5m, 7–9m* **1078** *wt* In relation to mankind – we cannot account for it.– *9–12m/w* black very common *12u "gewöhnlich | Bauch"*, ⇑*3–1m/wb* these 3 seem to arise out of cross of red & black, but no evidence. **1079** *wt* N.B It must be remembered that B is not to be trusted about species *9–10u "mit weissen"* , *11–12u±/w*♦ Then this is Fox var. *13–14u "mit | Schwanze"*, ⇑*7–5m/x*, ⇑*4u/wτ*, *wb* when these vars cross offspring intermediately blended. **1083** ⇑*5–3m/wb* all the vars of colours cross **1084** ⇑*12–8m* **1095** ↕*w* In several cases he has utterly rejected the Hunters varieties & therefore may be trusted, when he admits them. ⇑*11w* He has the L. varieties, besides. ⇑*11–9u±*, ⇑*2–1m/*→, *wb* no difference in any respect **1096** *7w* Nothing ⇑*1m* **1097** *2m* **1119** ⇑*6–1m* Rabbits will not breed with Hares, after many attempts **1121** ⇑*8–6m* **1123** *6m/u "vier | acht"*, *14m/u "mehrentheils viermal"*, ⇑*7–3m* **1128** ⇑*5m/u ⟨colours⟩* **1131** ⇑*10m/u "vier | Junge"* **1133** ⇑*9–5m/w* become grey after some generations. **1136** *16u↔/w* short ears, round head *18u "oft | lang"*, *19u/wτ*

vol. 2 NB p4♦; Frisch Birds – Not in Linn Soc
Pigeon Pl. 143–151
Cock Tab. 127–137
p400 on Pigeons of this Book to p404
p396 Fowls nothing in Frisch
p1150; 1168; 1170; 1184; 1187 to 1204; 1271
SB ❑β
p400 Trumpeter in 1739
p404 some crossing domestic Pigeons I think read

396 *1–4m/w* From same parents legs feathered & not. **400** *wb* Frisch 1739 **402** *1–3m/w* will cross with others, & has crossed with Trumpeter & Jacobin.– *9u "Schleyertäbin"*, *11–16w* It is not true that Hawks cannot catch. **404** *5u "weisswarzigen"*, *5w* Pavodetto *8m/w* very large **463** *"143".m* **1150** ⇑*10–7m*, ⇑*3–1m*/⇑*2u "trifft | voll"* **1151** *13–14u*↔, ⇑*5m* **1168** ⇑*11–9m* **1170** *12–14m*, ⇑*12–9m*/⇑*11u "habe ich"*/⇑*9u "gesehen"/w* C corone & cornix **1171** *6–9w* Dwarfs occasionally born ⇑*11–8m*, ⇑*7u "Jungen | Alten"*, ⇑*5–1m*, ⇑*5u "gemischt | gesteckt"* **1174** *5–7m* **1184** ⇑*17–1m/w* crows following a little dog which used to catch mice **1186** *"Naumanns Vögel".w* where **1187** *3u "Raubenkrähe | hat"/3–4m, 9–10m/u↔/w* Beyond Ober ⇑*12u "Sie | grösser"* **1189** ⇑*13–9m/w* The grey colour only an exaggeration of base colour of all crows **1194** *15–16m* **1204** ⇑*10–7m* **1271** ⇑*12w* Magpie ⇑*9–5m*

vol. 3 SB ❑β
299 Peacock more fertile in India, but Temminck Gallinaceae better reference
309 Caudal feathers vary in Turkey – Q
316 number of eggs in Tame Turkey
335 Range of wild Fowls – Acosta only authority for American Origin
337 Fowl has 14 Caudals
339 Breed of Hens with Spurs. good layers p.410
355,6 In Capons, Tail & Comb continue growing. They ● castrate Hens. NB Great variability of Comb, & in Spurs, variation of Secondary Male Characters
400 Cocks have not enlarged skull in Polands, only Hens!
406 Frizzled Cock with split Feathers Spurs various; Hens have sometimes.
N.B. Ld Spencer has shown how maturity & size of cattle increased & quite lately we have seen this in Ducks & Geese.– When no record kept, wd not be observed & yet cd go on slowly.–

xv ↕*m/w* Read *⟨refers to pp. 293–500⟩* **299** ⇑*12–11m* **309** *4u "Anzahl | ist"* **316** ⇑*5u/wτ*, *wb* 54, ie 27 each **335** *14u "Acosta"/w* Acosta alone says Fowls American ⇑*2–1m/u "Morella | Hühner"* **337** *4u "vierzehn"/w* 14 tail **339** ⇑*8–5m/w* Q✍ Breed of Hens with spurs good layers; but the spurs disturb the nest **355** ⇑*10–6m* **356** *5–9m* **396** ⇑*8u "Kamm | Fleischlappen"* **399** ⇑*14u*✍ *"angefressenen Kopf"*, ⇑*16–13m/w* Canaries ⇑*7–5m* **400** *5w* Has Cocks *8–12w* Cocks can withstand this deformity. What says Blumenbach? *10–11w* Hen-poultry ⇑*7u "habe | bemerkt"*, ⇑*4u/wτ*, ⇑*3u/wτ*, *wb* Hähn Hühne **403** *4–6m/*Q✍ **406** *4–8w* wing feathers always split ⇑*12u*✍ *"Japan"*

407 *wt* Spurs but in Cochin? tuft *1–4m/w* spurs various Q✍, *4u "sehr langen"* **410** *15–18m* **434** ⇑*3–1m*/Q✍ **796** *5z*

vol. 4 SB1 ❐ℜ
p3; p13; p14; p.31 edge of caudal.– coloured to p.47 – swallow-tailed Pigeon Pigeons
Canary Birds
p454 difference in disposition of Canaries
p462 – if 2 top-knotted canaries are paired there come bald or birds with wound on head
p465 lay 3–4 times
p468 Hybrids.
487◆ 487◆ 478
SB2 ❏β
Bechstein Vol 4
p5 C. oenas Q pairs with tame (nothing said about fertility of offspring)
p14 C. livia varies most in colour of rumpi & is not true in this respect Q
17 do not mix◆ associate readily with Fancy Pigeons
47 Swallow-tailed Pigeon Q
31 Outer Tail feather on outer edge coloured like body of Pigeon X
454 Great differences in disposition in Canary Birds
462 If you pair 2 crown-turned Canary Birds, crown will be bald, & skull fail.
465 Canary Birds will lay 3– to 4 times (no ♣ wild Finch will do this)
468, 478 Q Hybrids of Canary Birds, various genera – Hybrids of Siskin & Goldfinch breed inter se, but at first small eggs & weak young

vii *4–8m/w* Read **ix** *"Canarienvogel".m/w* Read **xi** *"Zweyter Anhang".m*◆ **xii** *6–9m* **3** ⇑*9u "paart | bleiben"/w* pairs with tame → **4** *2u "zahnen | zu"* **13** ⇑*9–5m/w* House Pigeon with black Bars common in Germany **14** *1u "Feldtauben"/wt* The field Pigeon great vary in rump *1–6m/w* For those with blue rumps bring grey, with white & reverse **15** ⇑*5m/u "bey | dunkler"* **16** *15–22w* with Bars & white Rump 1/2 wild in towers &c, &c.– **17** ⇑*2–1m* **18** *8–15w* Field Pigeons vary when fed by man ⇑*11u "Liebhaber"*, ⇑*5u "gedüpfelte"/w* the chequered Dovecot ⇑*12–8m/w, wb* has watched how the wild vary as he gives order of appearance, I suppose may be trusted; but then gives Jacobin! Did he judge by commonness of variation? Does not say that crossing avoided.– **19** ⇑*2–1u "dass | setzen"* **21** ⇑*3–1m* **23** *13–17m/w* chequered ⇑*7–1m/wb* The ash-grey chequering sometimes disappears leaving the black chequering more conspicuous **25** ⇑*7m/u "grosse | Feldtauben"* **26** *7–9m/8–9u*↔, *11–14m/w* crosses **27** *4w* 1795 *7–12w* Swallow thin feathered legs scarcely larger than Dovecot *9u "dünn", 11u "kaum merklich"* **31** *1–4m/w* edge of outer tail feathers coloured like body. Like white & black bars. **32** *1–2w* Satz of Neumeister **35** ⇑*12u "aber | über"* **47** *6w* as a Plate, I suppose must have seen it *7–14m, 18m* **101** *4–5m/5–6u "bald | mehr", 11–13m/?* **454** ⇑*7–1m* **462** *wt* For feathers are parted & the parting gets wider & wider.– *5–8m*/Q✍, *9–12m/w* Mr Brent believes *11u/wτ, 12u/wτ* **465** *9–11m/9u "viermal"* **466** *4m* **468** *u/wτ* **469** *6wτ, 7u "zeugen | Junge", 7–12m*/Q **478** ⟨*err. printed 487*⟩, *3–4m, 16u/wτ,* ⇑*4u "Loxia Chlovis"* **487** *10z*✐ **903** *"Eisvogel".w*⊄✍ **927** *"Pieplerche".w* IV

BECHSTEIN, Johann Matthäus *Naturgeschichte der Stubenvögel* Halle; Hennemann; 1840 [CUL, S]
beh, br, cc, cs, ex, f, fg, gd, he, hy, in, mg, no, or, pat, sx, ta, tm, ud, v, wd, y

NB1 I thought of comparing rarity of English & German Birds after p210
There is very little information, except by inference, about fertility of the crossed canary-birds =
NB2 It is surprising how many birds have been introduced as cage birds
p1 to 7
–20 –40 83,4 105 skimmed
107 Memory; 108 var; 112 do; 114 range; 137; 138; 145; 177,185,155; 192 var; 196; 205; 210; 212; 215; to 253 to 256 to end –
SB ❏β ⟨*2 sheets*⟩
2 Birds understand each others cries
4 Singing male attribute to charm females
7 Voice of Birds improves by practice Q
20 ⟨*he means 40*⟩ Remarks on rarity of Cage Birds breeding, except such as Canary used to confinement
83 Psittacus large eggs but unfertilised 105 exception
XX 106 Pi◆ 142Q Different facilities in learning in Bullfinches p231 Q Different characters in canaries (as in man) – 267 Q in Larks taken wild 139 Bullfinch occasionally breeding
139 Canary male Bullfinch female (Canary female Greenfinch male p.145)
185 Male losing sexual character in confinement – 215 Linnet do. 219. do.
205 Habit Chaffinch has Q different song in different places – 265 Q Larks sing differently individually
210 Can cross House & Tree Sparrow, but

not reciprocal (224 on canaries do) Q
212 on comparative rarity of House & Tree Sparrow
221 vars of Goldfinch, 222
230 Easier to pair Siskin with Canary of same colour
237 Origin of Canaries & Hybrids of (p347) Hybrids) Q
238 Thinks want of exercise great cause of variation.–
⟨*over*⟩
239 Hybrid of Canary & F Species always takes after latter in colour & shape Q✍
242 good Breeders rare amongst Canaries
247 In Birds reared from nest, either sex will do to match with Canaries Q
248 Certain that Hybrid Canaries & Q Goldfinches & Siskins will breed inter se [but first young are weak]
247* Has himself crossed Bull-finch & Canaries N.Q
252 Canaries sing till they kill themselves.
262 Several cases of Birds in dark places losing brilliancy of colour (Ch 7) p.300 do
289 Garrulus lived 12 years
293 Q for instinct Migratory & Home Thrushes can be distinguished – probably do not cross (V Brehm)
312 Nightingale once exterminated do not reappear (shows less abroad)
318 Nightingale sometimes breed in cage surrounded by green boughs
319 live to 15 years old – even 25 years
322 Nightingale different Q prowess of singers, some are night singers, inherited
403N.Q I think mistake C. oenas & livia (No) But says nothing on fertility of Hybrids
418 case of Quail Breeding

title page ⇑*3m* **2** *10–17w* not aboriginal! ✂-urkey & ✂-en understand others ✂ of fear *15u*✍ *"Zaunkönige verständlich"* **3** *5–6x,* ⇑*12u "Locktöne"/w* understood by many species **4** *10–17w* from happiness or love ⇑*12–11u "Denn | Weibchen"/*⇑*15–11m/w* few females sing in widowhood ⇑*6–5m/u±* **5** ⇑*15–1m/wb* different species learn with different facilities → **7** ⇑*13–12u "weil | Männchen"/w* larynx not so strong in female ⇑*5–3u "dass | wird",* ⇑*5a/wτ,* ⇑*5–1m/wb* improved by practice **20** ⇑*8–3m* **40** *wt* V Blaines Encyclop of Sport. (Athe) whether Falcons were bread or continually fresh caught – good case of difficulty of breeding, after thousands of attempts on European bird. *1–20w* Elephants occasionally breeding may be compared to the mule occas. doing so **58** *6V* **61** ⇑*11V* **67** *15V* **83** ⇑*10w* Psittacus macao ⇑*5–3m/*⇑*5–4u "Bei | unbefruchtet",* ⇑*1*→ **84** *2–4m/4u "aufgezogene", 5u "nur | zähnen"* **89** *11x/u "pfeifen"* **105** *16–17m/u↔, 17–20m/x, wb* it is known how very long pigeons live in confinement – ∴ not diseased. **106** ⇑*2–1m* **108** *15–20m* **112** *1–4m,* ⇑*13–3m* **114** *15–18m* **137** ⇑*10–3m* **138** *11–20m,* ⇑*14wτ,* ⇑*13m/u "wie | Vögeln",* ⇑*9–8m/*⇑*8u↔* **139** ⇑*4–3m/u "bringen | auf"* **142** ⇑*10–5m* **144** ⇑*4m/u "Alter der"* **145** *2–6m* **155** *13–18m* **177** *4–5m* **185** ⇑*3–1m/x, wb* X I think I have overlooked some analogous facts **192** ⇑*2m/u "Spielarten"* **193** *1–2m* **196** *10–12m* **205** *10–12m* **210** ⇑*9–8u "ein | gerathen"/w* Tree Sparr. **211** ⇑*3u "Fringilla montana"* **212** *9–11m/w* still rarer in England **215** *9–11m* **218** *18–21m* **219** *17–18m* **221** ⇑*6–4m* **222** ⇑*18–14m,* ⇑*11–8m,* ⇑*3u "kohlschwan"* **224** ⇑*9–5m/*⇑*6u "wenn | mit"* **229** *14–16m/15u "Deutschland | gemein"* **230** *14–19m/15u "die | gleichen"/18u "sogenannten"* **236** ⇑*19–18m/u↔,* ⇑*8u "ohne | vermehrten",* ⇑*4–3m/*⇑*3u "erzogen. Anfänglich",* ⇑*1u/wτ* **237** *1–4m, 6–10m,* ⇑*11–8m/*⇑*11u/wτ/wb* origin ⇑*3–1m* **238** *11–12u±/12u/wτ, 14–15m/15u "oft ausserordentlich",* ⇑*8–5m/*⇑*5u "sehr einfaches"* **239** *1–2m/*Q*/2u "Farbe | Gestalt"* **242** *6–20m/*Q✍*/20u "Oder | spät", zb* **243** *1–2m* **245** *6–8m/8u "alle | möchten"* **247** *wt* X F. linaria *6–7m/u "und | Bastarde", 9–18m/15u "Männchen | bei",* ⇑*23a/wτ,* ⇑*21–17m,* ⇑*16u/wτ,* ⇑*15–14u "Erfahrung | die",* ⇑*11a/wτ,* ⇑*5–4m* **248** *3m/wt* F. spinus or Siskin *2a/wτ, 3u "wieder unter", 2–3m/*Q *5–7m/*Q **251** ⇑*21u "Das | Stube",* ⇑*16m/u "Verschidenheit | Temperamente",* ⇑*5m* **252** *2–3m/wτ, 8u "Adern | zersprengen", 9u "herabfallen | sind", 15–21w* related song *20–21m/u "der | fortpflanzt"* **256** *11–12m/u "Sie | bei"* **262** *6m/u "das | gemeissen"* **264** *12–13m/u±* **265** ⇑*8–4m/u±* **267** ⇑*3–2m/u↔/wb* corporeal virtue & vice **282** *3–5m* **283** ⇑*3–1m* **289** *13m/u "zwölf"* **293** *19–22m,* ⇑*12–19m,* ⇑*8–6m/*Q*/u "welche | fremde"* **294** ↕*w* Nothing said about breeding in domest. *13w* The thrush **299** ⇑*13–10m* **301** *2–4m* **308** *20–21m/u "sind | Farbe"* **309** *zb* **310** *8m/u "bis | Schweden",* ⇑*3–1m* **311** ⇑*6–5m/u "wenn | leider"* **312** *wt* The numbers of Nightingales in Europe in summer have no relation to amount of food for them. *5wτ, 7–12m/w* This helps to show at what period the Sylviadae are destroyed. *15–18m/w* think with respect to Malthus. ⇑*16–10m/w* instincts dormant for one year **313** *3–4m/u "Da | reisen"* **318** ⇑*17–13m/*⇑*13u "zuweilen bewerkstelligte"* **319** *2u "fünfzehn", 3u "bemerkt | Orte", 6–7m/u "fünf | ist"* **322** *15–20m/16u "nun | Schweden"* **323** *17–20m/17u "Es | Nachtigallen",* ⇑*21–13m/*⇑*20u "weiss aus",* ⇑*12–11m* **329** *7–14m/12u "Diese | einer"* **330** *1–7m* **332** *4–8m* **333** ⇑*6–4m* **346** ⇑*7m* **356** ⇑*6–5m/*

BECHSTEIN, STUBENVÖGEL
u "einige|um" **362** *⇑10m/u "viel matter"* **377** *⇑14m/u↔* **383** *4–6m* **387** *16–21m/17u "Varietät"* **397** *⇑9–5m/w* appears not uncommon **403** *11–15m, ⇑8–6m* **406** *8–9m/u "tritt|Jungen"* **407** *⇑11–10m/w* Columba risoria **408** *8–10u±, 11–12m, 16–20m, ⇑13u "stets"/⇑14–12m, ⇑12u "grösser werden"/⇑13–10m* **409** *3m/u "acht Jahre", 13–15m, ⇑7u "unsere|schön"* **411** *1–3m* **418** *12–15m/15u "Jene|aus"* **423** *17–19m/18u/wτ* **424** *⇑15–14m/⇑14u "die|Jahre"* **428** *⇑11–6m* **436** *⟨err. printed 466⟩ ⇑13–12m*

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geo, ti

36 *39–45m* **49** *3–17m, 26–31m* **120** *27–28"...", 28–35m* **136** *wt* Put this note to Matilda Isld *wb*♦ Redo this Some of isld steeper ● *18–21w* before 49 years *24–25w* in 1767 *26–30m, 32m* **137** *wt* who was Wallis *1–3m* **143** *wb* Here there is no explanation of ledge *19–21m, 27– 39m, 37–42m* **160** *7–14m, 13–14u "general|fathoms", 13–15z* **165** *16–45m* **166** *1–45m, 20–21u "instance|usual", 27–29u±* **167** *wb* 67 *2u "equally narrow", 14–17m, 15–17w* like hill not Crater *17–21m* **168** *13–43m, 22–24w* Earthquake wave **169** *4–40m* **170** *1–44m* **174** *35–42m* **200** *6–25w* Note if same occurs to Beagle *15–25m, 15–25m* **209** *4–15m* **211** *4–11m* **212** *38–43m* **213** *1–2m, 40–43m* **231** *wb ¢¢* **314** *44w* 180lbs **444** *31–37m*

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beh, h, phy, y

NB p. 110 sneering muscles; p. 131 snarling muscles; 158 Pain; Wood-cuts of muscles 99 p.107 109 p.261 general
title page *wb* 1844 first Edit in 4to 1806. 2d Edn in 1824.– **facing iii** *fig.w¢* **13** *3m, 14m* 38 *24–32m/24–31w* add or more strictly bones of the jaw in comparison of Negro & European *27a "jaw"* two **64** *10m* **82** *7–8m, 12u "a|upon"* **84** *4–5m* **85** *20–24m/23–24u↔, 26–27m/26u "office"* **86** *25–27m, 27u "emotions|developed", 29a "heart"* but why? **87** *17–18!, 17–18u "instrument|mental"* **88** *1–14m, 5w* fear *21–23w* traces of sobbing, *22–25m, 32–33m, 32"...* **89** *1–2m, 2...", 3–6m, 11–16m* **90** *6–8m, 6–7w* ie Heart & Lungs *7w* Why? *20–22m, 29–30w* see C. Bernard **91** *9–11m, 9–12w* because screams natural consequence *16–19m, 31–33m, 33u "double"* **92** *3–4u↔, 9–13m* **94** *28–30m* **95** *2–3m/2a "of"* moaning & screaming, *8–12m, 15–18m, 16u "serves|economy", 21–23m, 22–24m, 22–23u "That|from", 23–26m, 24u "extending|surface", 25u "parts|exposed"* **96** *3–9w* albino negros blush, so not to exhibit expression.– *14–15m* **98** *wt* If all muscles are common to apes, this can hardly be case *1m, 2–6m, 20–22m, 23m* **99** *6–8m, 19–20m* **100** *3–12m* **101** *27–28m* **102** *6m, 18–24m, 26–31m, 24u "straight", 30u "oblique"* **103** *9–12m/"...* **105** *17–20m, 24–26m/25u "laughter|sneezing", 24–33"...* **106** *1–4...", 4–7m, 4c, 9–13m, 13–15m, 16–27m, 29–33m/"..."/w¢* **107** *11–13m, 11–14w* in passion distended nostrils **108** *19–22m* **109** *fig.w/wb ⟨explanation of fig.⟩* **110** *12–21m* **111** *12w* M. mentalis *21–25m* **114** *4–9m* **117** *18u "expression|speaking", 19u "modulation|lip", 21–22m* **118** *12m, 18m, 28–29m* **120** *13–18m* **121** *3–5m, 13–15m, 16–18m, 20–22m* **122** *6–9m, 9–14m/w, 18–21w* & ears not depressed *30–32m/w* so threaten other males **123** *16–22m/?, 19u "retroverted|eye", 20–21u "so|blow"* **126** *4–5m, 15–16m* **131** *2–3m/w* because retained *14–17m, 21–22u "Their|canine"* **132** *22–25m, 26–30m* **133** *3–5m* **135** *2–3m* **136** *25–29m* **137** *2–9m/?, 5u ↔, 7u "they|eyebrows", 11–14m/11–12w* monkeys have? Owen *12–14w* frowning good *13–16m, 15–16m, 16w* this in man but no but not the M *17–22w* I have seen well developed in monkeys incessantly clenching skin over eyes *26–30m, 30–33m, 30–31u "a|animals"* **138** *4–6m, 4?, 4u "arching of", 12–17w* I suspect he never dissected monkey. *19u "expressing|fear"/18–20w* Dog !!! **139** *3–5m, 4–5u "muscle|expression", 6u "sign|altered", 14–19m, 16a "oris"* or triangular oris *22?, 23u "weeping", 28–31m* **140** *9–11m, 12–14m, 24–27m, 29–35m* **147** *1–4m, 6–9m, 16–21m, 28–31m, 31u "system|nerves"* **148** *1–2w* Disputed by Marshall Hall **149** *6–8?, 15u "lacrymal|infected"/w* not in Babys *31–33m* **150** *1–3m, 9–18m, 9–14w* upturned corners give look of silly complacency *25m, 29–34m, 29–32m, 30u "elevated shoulders"* **151** *3–6m, 5–6*Q *10–14m* **152** *zt, 16–21m/w* but are very little under the will *25–26m* **153** *wt* in Laughter brows are brought down & arched *1–6m, 1w* [gr Zygomatic?] **154** *10–13m, 10–11u "tremor|excitement", 28m, 35m* **155** *7–8m* **158** *4–8m, 9–12m, 16–21m, 24–30m* **159** *4m* **160** *12m* **163** *14–18m* **164** *1–5m, 22–24m, 29–33m* **165** *8–12m* **166** *fig.w* shoulders raised, *8–12m* **167** *28–40[...], 30–40m, 34–37m* **168** *1–3m* **169** *4–5m, 10–11m, 13–14m, 21–22u↔* **170** *3–6m, 8m* **171** *24–27m* **172** *8–13m* **174** *3–11m, 5–10m, 5–7"...", 11"..."* **176** *8–13m* **177** *8–16m, 9–10w* no

muscle keeps still **178** *1–4m* **180** *9–12m* **183** *14–15m* **185** *29m* **189** *5–8m, 9–12m* **190** *5–7m, 12–15m, 22–26m, 29–33m* **193** *10–13m* **194** *9–10m, 25–26m* **197** *24–26m*◆ **198** *16–22m* **211** *18–22m* **214** *22m* **219** *9–15m*
Appendix "On the nervous system" by Alexander Shaw, pp. 231–258
243 *25–37m*/→ **244** *32–36m* **248** *23–30m* **249** *12–16m* **252** *1–4m* **257** *28–37m*
Explanation of plates, pp. 259–265
⟨*u, w henceforth names of muscles*⟩ **261** *7u, 8w, 15u, 15–16w, 19–21w, 23–26m/24–26w, wb*◆ **262** *2m/w, 12m/w, 14m, 14–15w*◆, *16m/w, 21m, 21–24w, 24m/w, 32m/?*

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37 *5m* **77** *25m* **89** *14m* **111** *11m*

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beh, cc, ds, f, gd, geo, h, mhp, mm, oo, phy, sp

NB1 ⟨*much not CD*⟩
Page 23 26 Ants
28 Ants helping each other
28 Ants
112 Humming Birds S S
118 Monkey & Eagle – ⟨*CD:*⟩ give case I do not allude to Mivart – Probably after Rengger, just allude to Belt on ●
171 Indians
196 Cockatoos protected – Toucan
198 Toucans
209 Ticks
219 Acacia & ants protecting them
220 Nectar protecting plants ⟨*CD:*⟩ by ants
250 Skunk
260 Glacial
291 Nests of wasps
316 Butterflies protection & ants & spiders ⟨*CD:*⟩ resemblance
317 Lampyridae
320 do
⟨*CD:*⟩
321 Frog protected by colour
334 FW area continuous
383 Protection
384 do
NB2 ◆ These references apply only to facts useful for Descent of Man
◆70 Phaseolus not frequented by Humble-bees & sterile
p. 333 Wide distribution of FW shells & Coleoptera
207 Romanes
SB ✍ p.19 Phalangidae escaping ants by lifting one after the other their long legs.
23 Blindness of Eciton an advantage in keeping them together
26 sympathetic help of ants
74. Leaf-cutting ants determines existence of trees & plants in S. America
77 ants rolling loads down steep slope
79 one of leaf-cutting – p. 83
grass brought by mistake
83 learnt danger by experience from carriages on Railways
p 119 intellect & art of Monkeys
p 219. Bulls Horn mimosa & ants
p 222 Ants & Melastomataceae
260 Glacial deposits.
291 Birds building close to wasp-nests
316 Mimickry. mostly used p. 383 do.
334. Causes why F. Water productions have not given rise to any new species – not continuous under same conditions

1 *zb* **7** *2–8m, 3u "polygamous"* **19** *19–22m* **23** *23–26m* **24** *11–20m* **26** *6–16m, 25–30m* **28** *24–31m* **70** *12–23m/16–19u*↔ **74** *3–16m, 27–31m* **75** *9–12m* **77** *2–6m* **78** *16–20m* **79** *21–23m* **83** *16–18m, 28–31m* **112** *5–21[...]/6–21m, 10–14c* **118** *5–12m,* 8Q *13u "Cebus"* **119** *6–9m* **128** *3–8m* **132** *15–19m, 22"..., 22c, 23c, 25c* **133** *wt* Mr Belt says that he watched many flowers during a whole season & *3–4"..."/1–4m, 6–13m* **134** *14–26w* this accounts for the orifice being closed **171** *1–24m* **196** ⇑*6–1m* **197** *19–27m* **198** *5–13m* **206** *22–30m* **207** *5m, 5[...*✍*, 24w* no no *26w* races have **208** *13...]*✍*, 13–16m* **209** *9–14m* **219** *11–28m* **222** *5–12m* **250** *1–4m* **260** *22–32m* **291** *20–32m* **316** *20–32m* **317** *10–14m, 10u "family | as", 12u "Lampyridae", 12m, 13u "genera", 14–18m, 15u "were invariably", 16u "not touch", wb* over **318** *7m, 7–14m* **320** *13–20m, 16m, 16–17u "out | eatable"* **321** *3–14m, 15–23m* **334** *11–14w* no Water Birds *24–30m* **335** *12–15?, 16–18?* **336** *1–2m* **383** *7–14m* **384** *25–28m* **385** *3–6m, 7–16[..."*✍*, 8–15m, 8a "wing"* is

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em, geo, hl, tm, y

Beneden ℘

Bronn
SA ⟨*pp. 594–595*⟩
p513 to 542; 555,556; 560; 580 Hot Springs **513** ⇑*6–4m* **514** *8–9m* **516** *5–10m, 20–25m,* ⇑*3–1m/w* Bronn preceded **517** *1–4m, 7–11m, 10–13m,* ⇑*2w* Bronn preceded **519** *3–4m, 17–19m* **520** *11–15m* **525** ⇑*9u "division* | *travail",* ⇑*6–4m (Milne-Edwards)/*⇑*4u "diversification"* **526** *10–20w* Best discussion on Highness & Lowness.– *20–25m/21u "Pour* | *animaux"/22u "minimum* | *chaque"* **527** *1–5m* **528** *8–9m* **534** *1–10w* Ruminants when young have bones typical & distinct – Hence embryo higher than mature animal *13–16m, 17–24m* **536** *wt* Land animals higher than aquatic *1–17m* **540** *14–18m* **542** *5–14m* **555** *1–9m* **556** *2–8m,* ⇑*8–5m/*⇑*6u "un* | *des"* **560** *18–23m* **580** ↕*m/w* Hot Spring **581** *1–8m,* ⇑*4–3m*

BENTHAM, George *Handbook of the British flora* London; Lovell Reeve; 1858 [CUL]

NB D
ix *4–9m* **xiii** *10m (Babington), 12–13m*
⟨*markings not CD, except possibly:*⟩ **32** *4–7m* **71** *"Opium Poppy".w* Down **106** *"2".w* W **119** *"3".w* Norfolk **130** *"1".w* Wight **137** *"2".w* I of **139** *"1".w* Isl of Wight **153** *"1".w* Norfolk **154** *"2".m* **161** *"3".m* **163** *1–3m* **165** *"2".w* I of W **181** *"1".w* Down Isl of Wight *"5".w* Isl of Wight **193** *"2".w* Norfolk **207** *"1".w* Norfolk I of Wight **223** *"7".w* Somewhere **229** ⇑*13x/u "in* | *hairs",* ⇑*2x/u "covered* | *down"* **230** *11–12x/u "less* | *plant"/w* Norfolk ⇑*1x/u "and"* **231** *1u "down"* **232** *9–10m/x/u "and* | *hairy"* **234** *"1".w* ⟨*Hart*⟩field **277** *"9".w* Norfolk **279** *"1".w* Isl of Wight **292** *"1".w* I of W **315** *"8".w* I of W **317** *"1".w* I of W **405** *"3".w* Norfolk **420** *"1".w* of Wight *"2".w* field **453** *"2".w*✎ Down 70 **475** *"1".c, "3".c* **476** *"4".c, "5".c, "6".c* **477** ⇑*16x/u "Common* | *Britain"* **478** *"10".x, "11".x, "12".x* **479** *"14".x, "15".x* **503** *"1".w* I of W **525** *"1".w*✎ Down 70 **530** *"1".w*✎ Cambr

BENTHAM, George *Handbook of the British flora* London; Lovell Reeve; 1858 [CUL, another copy]

BENTHAM, George and HOOKER, Joseph Dalton *Genera plantarum* vol. 1 i–iii, vol. 2 i–ii, vol. 3 i–ii; London; Reeve & Co.; 1862–83 [Botany School]

vol. 1 ii, 441 *30m, 40m, 49m, 53m* **442** *6m, 30m, 34m*♦*, 37m, 39m, 42m* **443** *6m, 16m, 51m* **444** *3m, 6m, 8m, 18m, 51m* **445** *10m, 26m* **446** *9–12m, 13m, 24m, 26m, 53m* **447** *1m, 6m, 46m* **448** *11m/9–12w* also see Linnaeus **449** *7m, 30m, 53m, 55m* **450** *49m, 55m* **451** *3m, 35m, 46m, 55m* **452** *16m, 24m* **453** *27m* **456** *26m* **458** *50m, 53–55m* **459** *1–2m, 7m/w* Gleditschia Duchata **460** *19m* **461** *13m* **463** *19m, 29m, 39m, 45m, 48m, 51m* **464** *6m, 18m*
vol. 1 iii, 951 *33u "Petala* | *imbricata", 35u "Petala valvata"*

vol. 2 i, 10 *33m* **11** *9m, 14m* **14** *22m, 27m, 37m* **16** *45m* **17** *32m* **21** *28m* **24** *6m, 7m, 26m* **25** *12m* **26** *29m* **27** *38m, 54m*
vol. 2 ii ℘

vol. 3 i ℘
vol. 3 ii ⟨*after CD's death*⟩

BERJEAU, Philibert *The varieties of dogs* London; Dulau & Co.; 1863 [Down]

[BERKENHOUT, John] *Clavis anglica linguae botanicae, or, a botanical lexicon* London; Becket, de Houdt, Hawes, Clarke & Collins; 1764 [CULR, pre-B, S]

ac1 *10m* **ac2** *11–12m, 16–17m* **ap** *21m/u±* **ar2** *4–6m* **ca1** *17–18m* **ca5** *4–6m* **ci1** *19–23m* **cl** *21–22m* **co5** *5–6m* **cr1** *17–19m* **cr2** *8–9m* **cu2** *14–15m, 18–19m, 20–21m* **di12** *18–19m* **em** *20–21m* **er** *3–4m, 23m* **fi2** *12m, 18–19m, 21–23m, 24–25m* **ge1** *20–21m* **gl1** *1–2m, 18–19m* **ha2** *12–13m, 19–20m* **hi** *3m* **im** *7–8m* **in4** *15–17m* **la3** *17–19m* **li2** *15–17m* **me** *13– 14m* **mu1** *13–14m* **mu3** *5–7m* **ob** *5–7m* **oc** *1–2m* **op** *3–4m* **ou** *7–8m, 13–19m* **pe1** *8–9m* **pl2** *11–12m, 25m* **pl3** *2–3m* **pr1** *5–7m, 11–13m* **pr2** *3–4m* **qu1** *14–15m* **re2** *3–5m* **ri** *14–15m, 17–18m, zb* **se1** *18–19m* **se2** *13–14m* **se3** *21m, zb* **se4** *16–17m* **so** *5m* **st4** *5–6m* **su1** *10m, 16–18m* **su3** *19–20m* **to** *5–6m* **tr1** *7–8m* **tr4** *6m* **tu1** *9–11m* **va2** *8–9m* **ve1** *11–12m* **ve2** *1–2m, 17–18m* **un1** *20m, 22–23m*

BERNARD, Claude *Leçons sur les phénomènes de la vie communs aux animaux et aux végétaux* Paris; T.B. Baillière et fils; 1879 [CUL (2nd vol. only)]
che, phy

77 *5–11w* glycogen but no sugar in muscles **80** *23–28m* **327** *23–26m* **333** *17–19m*

BERNARD, Claude *Leçons sur les propriétés des tissus vivants* Paris; Germer Baillière; 1866 [CUL]
beh, che, ct, phy

NB ♦
The last Chapter on the Heart perhaps concerns Expression.–

p 369 Ton Muscul
Begun p 332
349 will explain blushing
p. 337 for Drosera
SB ⟨*2 sheets*⟩
⟨1⟩
21♦; 22♦
164 Contraction of vegetable cell – Drosera; drawing of cell; Drosera p.177♦ p. 210, p.337
177– Wourara affects nerve & not muscle
210 upas digitalis act on muscle
337 Strychnine affects sensitive nerves
Drosera
Bernard Tissus Vivants
[Hence it is wonderfully important that after strychnine a tonal does not produce movement – when most absorbed does do so]
⟨2⟩ ♦
April 20 1871
p. 310 not contiguity
316 spreading of irritation
321 Reversed nerve current
336.–Bears on spreading of effect of emotions.
353 profound contrast between voluntary & reflex actions.– latter most powerful when decapitated – Bears on weeping –
358 bears on individual effects of emotions
371; 384
397.– so Paget wrong
409 Name of vaso-motor system – 410
457 so quite independent of Habit certainly so.– But even here it may be habit which makes nervous power so readily follow this course.–
⟨*over*⟩
p354 Action of Brain checks reflex actions of many kinds Blushing & ♣ as the reflex action is to keep capillaries closed, if this is interfered with, there will be blush
p452, 457 Pneumogastrique irritated checks or stops action of Heart. thus a severe pain in any part act through the nose
(See H.H. says ♣ thinking about the action of the Heart interferes with circulation)
Nearest analogy very good for Blushing
My case of sneezing – about breathing○
p 459 direct action on Heart but why, except for habit, does the ♣ sensitive nerve, acting on brain influence the pneumogastrique.–
☞✎ very slight sensation initially affects Heart
46♦ 461, 463 reciprocal action of Brain on circulation & vice versa; syncope direct for heart
464 Reverse action & 466 direct action

21 *14–21m* **22** *15–17m, 20–23m* **177** *3–4m, 21–22m* **178** *9–12m* **210** *29u "digitaline"* **310** *20u "non | "* **311** *1–3m, 1u "contiguité"* **316** *6–10m, 13–16m* **321** *1–7m* **336** *26–29m* **337** *15u "nerfs | mouvement", 20u "animal | curare", 21–24m* **353** *17–25m, 20u "augmentent | étendue", 21u "souvent | diminuer", wb* V → & p.358 **354** *2–5m, 6–9m, 11u↔, 19–23m, 24–29m, 25–26u "C'est | réflexes"* **355** *4–6m* **358** *1–2m, 11–16w* between all the reflex actions *11–18m, 16–18u↔, 21–28m/24–28w* this is better than Müller *wb* Allude to Müller & give newer views **370** *22–28m* **371** *2–6m* **384** *12–17m/12–14w* reflex actions very special **397** *wt*♦ salivary gland acts by relaxation of arteries *2–8m, 15–18m, 18u "cette | paralysante", 20m/u "mais | sympathique"/w* a *wb* Hence in a blush some nerves from sensorium must paralyse the vaso-motor ganglia **400** *wt* The experiment of the arrow shows that much not affected only ♣ nerves, but these allow the vaso♦ capillaries to expand, & this expansion I presume causes flow of saliva **409** *24–29m/→* **410** *9–28w* I suppose when we burn from sensitive nerve causing impression to the cerebro-spinal ganglia & then paralyse the sympathetic & cause it to relax the vessels *17–20m, wb* When we think intently of a part the part of brain which receives the sensitive nerves from part in question is affected, & this ♣ influences the cerebro-spinal ganglia – **411** *1–7m, 22–24m* **439** *15m*✍ **452** *26–29m* **453** *1–6m* **457** *22–29m/→, 24u "douloureuse"* **458** *28u↔* **459** *1–6m, 12–17m* **460** *19–22m, 21–22u↔* **461** *14–19m* **463** *13u "pâleur des", 15–17m* **464** *24–29m* **465** **466** *2–7m* **485** *6–12m/7–8w* Ton **486** *24–29m/25–26w* Ton? **488** *26–27m* **489** *14–15m, 25–26m* **490** *14m, 20–26m, 31–32m, 32u "Ton musculaire"* **491** *20–21m*

BERNHARDI, Johann Jacob *Über den Begriff der Pflanzenart und seine Anwendung* Erfurt; Friedrich Wilhelm Otto; 1834 [CUL]
cc, ch, ds, f, fg, gd, he, hy, ig, mn, no, or, phy, rd, sp, spo, sy, t, tm, v, wd

SB ❐ℜ
Bernhardi
4. Definition of various forms of species Q
7. slight differences going with white var.
8 on Anagallis – argues for A. collina Q
12 one-leafed Strawberry, heredetary
14 on lacinated and curled leaves common to many genera
30 on Panicum ciliare turns into C. sanguinale Q
35 on vars. of some grapes very constant

BERNHARDI
39 a hybrid grass – rare case
♦45 Erysimum strictum not true
50 on a Pimpinella ♣ being on a var.
66 seedlings of Veronica changed colour – on vars of Veronica keeping true for 10 generations –
68 3 vars with analogous differences study these pages & look to Babington & Steudel will come in after Anagallis

vi *11–14w* Denies the universal tendency to avitism *15–19w* has no tendency to return to parent form *15u "Chelidomium lacinatum"* **2** *15u/wt, 18u/wt* **3** *wb* There is no necessity according to my theory that new species shd have not descended from several pairs **4** *9–18w* Unterart is in fact a doubtful species, probably a species but very little different from other *22–30w* "Abarten" a variety which does not tend to go back to parent form. "Spielarten", those that go back in one or more generations *wb* Does anyone think wild Pampas cattle identical with present stock.– **5** *1–2u "Abänderungen"/1–6w* Varieties which do not keep constant, or only in certain ground.– *3a/wt, 17–25m/18u "so | Zweifel"/17–25w* These several forms of species hard to distinguish *wb* Unterart subspecies = doubtful races or ♣ the close species Abarten – hereditary = race (or variety in animals) Spielarten which ♣ are herditary for few generns – variety of Decandolle Abanderungen, which are not at all hereditary – allied to Monstrosities **6** *28–30m/30u "Rumex | nemorosus"/28–30w* colour of Beet *wb* compare these with Do they not belong to same Family **7** *18–22u♠/18–28w* 1st turns into last without sowing. When colour more permanent, then accompanied by some slight changes just as Henslow thought wd be See next Page *23–26m/wb* not in Spengler This bulbocapnos ♣ Carus produced white seedlings.– **8** *12–19w* Differences of anagallis phoenicea & arvensis.– not proved to be same *23–25m/22–30w* anagallis collina has 2 coloured flowers, believes this though experiment not decisive Q **9** *5u "A. carnea"/1–5w* Q This case true *7m/m, 8–13w* fruit, taste & ♣ seed vary in colour & are often inherited *18u "Phaseolus multiflorus"/18–19m/w* ? colour of flower & seed go together *22–25m/23–30w* doubling not change of organ, but simply increase of petals **10** *1–10w* In Datura no loss of ♣ stamens (but may there not be potential stamens?) *14–18w* on Hairs or covering of Plants **12** *9u "Trigonella coerula"/9–12w* var. with stalks of leaves with leaflets, *23–26m/23–28w* relative length of stamens good character in this ♣ Fam. but variable in Labiatae.– *29u "Fragonaria monophylla"/wb* one-leafed Strawberry is heredetary **13** *2u "folia terna"/w* rarely inherited *19u "Caulis fasciatus", 21u "Sedum cristatum"/21–23w* in this case in some degree hereditary. *24u "Celosia cristata"/24–25w* Cockscomb example in flowers *28u "Triticum compositum"/wb* hereditary division of the flower stalk **14** *1–6w* Thickening of special parts, as in Cabbages & heading of Cabbages. *9–27w* Same variation affecting so many plants shows, how goes by laws. Lacination hereditary in Sambucus (& in Lettuce & Cabbage) so curled, blistered, &c. *10u, 12u, 13u, 16–17u ⟨u♠⟩, 12–17w* not hereditary *20u, 21u, 27u, 28u ⟨u♠⟩* **15** *wt* curled leaves of natural species more regular *3–7w* curled mint by seed had its first leaves not curled.– *7u♠/10–11w* partly hereditary *13u♠/12–15w* petals only curled inherited *16z, 18u♠/18–19w* leaves of in same situation **16** *wt* variety of Paeony with small leaves *12–15w* Is there any Linaria with regular Corolla *30u "auf | Boden"/wb* on rich ground leaves of involucra? end in spikes **18** *2u/wt* **19** *1u♠/2–3u "zwei | setzen"/1–4m♦, 8–10m, 9u♠, 8–10w* Probable mistake of Kolreuter's *24–30m/w* See to this D. stramonium & ferox might be quite fertile. but D. Tatula & ferox are not quite but D. stramonium & tatula are. *wb* If I understand he only assumes about D. stramonium & ferox **20** *24–30m/wb* When intermediate forms found together, always necessary to bear in mind the chances of their being hybrids.– **21** *wb* If the intermediate forms kept constant then one must be considered an "abart" of the other; if they went back to both parent forms, then they shd be considered as vars. & were result of external conditions ♣ on the two parents; which wd be subspecies **22** *15u♠/16z/14–18w* Organs of these plants make great differences **26** *27z* **27** *19z* **28** *28u♠/w* (a) *wb* (a) Doubtful whether these varieties, because other species differ in same, but greater degree.– **29** *wb* Those who are not naturalists think species a well defined entity; show the distinctions of Bernhardi; of Decaisne & Hooker.– H.C. Watsons classification of British close species – then the difference of numbers – Then cases of certain well known genera as Land-shells & Rats – then such flagrant cases as the 2 Oaks – all this difficulty explicable on my theory depends only on ignorance of creations.– **30** *14u♠/18u♠/14–17w* Q turns after repeated sowing into *20–24w* V Steudel to see whether admitted *30u "glatte Abart"/wb* does not change during 12 years **31** *2u♠/w* not this *5u "Abart"/6–7w* this also true *11z* **32** *2m, 6u♠/5–13w* This is a caryopllea, when it flowers 1st year, & differs in only one floret being awned.– leaves smaller *14u♠* **35** *28–29u♠/wb* changed in 3d sowing to D. glomerata **36** *2m* **39** *25–28m* **40** *2u "hat | nicht", 2–3m* **44** *19–21w* wild Cruciferae vary much *23u♠/24–26w* probably vars **45** *13u♠/14u ♠/14–21w* scarcely abortive much less good species being cultivated from seed **46** *3m, 4–6m, 7u/wτ* **50** *8u♠/8–13w* Kept true for 6 generations, but Steudel makes var. of L. Gallicum *16u♠, 18u♠, 16–18m/16–19w* From this seed gave P. magna (Steudel makes var of P. magna– **66** *4–8m/w* In Veronica colours blue or red & some interchangeable *13w* changed its colour *17–18w* seedlings changed colour *25–26u±/25–30w* Red vars. of these ♣ blue Angallis kept true for 10 generations but may be thought true species; but he seems to think other differences trivial.– **67** *21–25m/21–28w* when colour of flowers alters; so foliage, & when less colour, plant smaller. **68** *17–21m/12–28w* Like Rubus case & Hilacium. The abarten with red flowers from these 3 species differ from their stammarten in analogous way

BERZELIUS, Jöns Jacob *The use of the blowpipe in chemical analysis and in the examination of minerals* London; Baldwin, Cradock, Joy and J. Mawe; 1822 [Down, pre-B]

106 *3c/w∉* **108** *23c/w∉, 24c/w∉* **141** *11c/w∉* **147** *16c/w∉* **154** *15c/w∉* **214** *23c/w∉* **275** *15w* A *wb⟨not CD⟩*

BEUDANT, François Sulpice *Traité élémentaire de minéralogie* Paris; Verdière; 1830 [Down, on B] ℘

BEVAN, Edward *The honeybee* London; Baldwin, Cradock and Joy; 1827 [CUL, pre-B, S E. Catherine Darwin]
beh, oo, wd

NB 352 Crippled Spider purling differently; 384♦; 261 taming Spiders & coming to Person for food
℘
261 *25–29m*

BEVINGTON, Louisa Sarah *Key-notes* London; C. Kegan Paul & Co.; 1879 [Down]

BIANCONI, Giovanni Giuseppe *La Teoria darwiniana e la creazione detta indipendente* Bologna; Nicola Zanichelli; 1875 [Down] ℘

BIANCONI, Giovanni Giuseppe *La Théorie darwinienne et la création dite indépendante: lettre à M. Ch. Darwin* Bologna; Nicola Zanichelli; 1875; trans. from Italian by G.A. Bianconi [CUL]
ad, beh, gd, ig, phy, rd, t, tm

NB All first part marked but nothing of importance
117; 158; x164, 9x;
I daresay many supposed rudiments have functions
173; x176; 179x; 206; 218;
Ruminant stomach – 268
Teeth & Skulls of vars of Dogs – 284
SB ⊸
31. number of joints in fingers good adaptation.– while intermediate – shows how well limbs adapted
117. Everything explained by adaptations
164. 169 uses of rudimentary toes to grip in descending mountains
174 no such a thing as a rudiment.
179. on the little hoof of oxen in ♣ soft marshy places.
206. In paddle of Cetaceans, variability of nodules of bone in cartilage
208 plan not uniform. joints in digits
218 explains wings of Bat by Mammiform Nature! & adaptation.–
268. no gradation between Ruminant & non-ruminant stomachs.– see Schiff on Duodenum

title page *w* 1874 **12** *8–12m* **17** *21–24w* Wings of Insects & jaws of do **19** *6–7u "nécessité | mouvoir", 7–9w* Crustacean & Cirripedes **22** *23–27m* **23** *8–12m, 18–21m* **24** *18–30w* insects a far greater number of pieces end to end in limbs **25** *8–10m* **31** *22–31m* **46** *wb* All this adaptation agrees well with me, & explains cause of general form of limbs **117** *3–16m* **158** *at ⟨page no.⟩, 8–12m/w* why not a mere prominence of adjoining bone **164** *20–23m* **169** *11–15m* **173** *18–23w* but why shd it be a separate bone *25–26m* **174** *11–13m, 23–28m* **176** *22–26m* **179** *16–21m* **186** *wb* why three bones & not in fin of fish or water Beetle **plate facing 186** *w* why 3 bones? **206** *7–12m* **208** *15–21m* **218** *18–22m, 19–20u "adaptation | nature"* **224** *7–10m, 8u "radius | seul"* **268** *4–12m/w* Schiff ♣ shows that the Duodenum, I think, acts for this end; but no structural passage *15–19w* Is it not in Kangaroos occasionally ruminant **269** *11–15w*

BIANCONI
Is it not in fact part of Oesophagus Schiff
275 *6–9m* **284** *22–28m*

BIBLE Cambridge; The Pitt Press; 1838 [Down, the family Bible]

title page ⟨*Note concerning children's diseases by Emma*⟩

BIGG, Henry Heather *Spinal curvature* London; J. and A. Churchill; 1882 [Down, I]

BILLING, Sidney *Scientific materialism and ultimate conceptions* London; Brickers & Son; 1879 [Down, I]

BINNEY, William Greene *The terrestrial air-breathing mollusks of the United States* 2 vols.; Cambridge, Mass.; Welch, Bigelow & Co.; 1878 [Down]

BLACKLEY, Charles Harrison *Experimental researches on the causes and nature of Catarrhus aestivus* London, Paris & Madrid; Baillière, Tindall & Cox; 1873 [CUL, I]
cc, fg, gd

NB Shows how effective wind is in Transportat of pollen
♦75 list of Plants
Effects of moisture discharge of pollen – 127 – 128
131 quantity of pollen of Graminae in air Q✍
– 132 – chaffO of grasses
pollen at great height – 141♦; 147, 8, 9, do. do. do. – Even alt wind had blown in any how from the sea
♦148 on Board Ship
♦152 error?
♦157 Buckwheat entomophilous
500 – 1000 ft; more in upper current than of lower [19 times as much] p152 over 1200 at alt 1000 ft

75 *33u "Plantago major", 34u "Rumex", 34u "Polygonaceae", 36u "Amentaceae", 36u "Urticaceae", 42u "Graminaceae", 42u "Cyperaceae"* **127** *26–32m* **128** *10–19m* **131** *38m* **132** *16–20m* **141** *29–37m* **147** *6–11m, 11u "600|* *hundred", 14u "500"* **148** *7–10m, 10–11w* p149 **149** *31–32m, 39m* **150** *8–13m* **151** *10–15m, 25–27m* **152** *6–11m, 15–17m*

BLACKLEY, Charles Harrison *Hay fever* 2nd edn; London; Baillière, Tindall & Cox; 1880 [Down]

BLACKWALL, John *A history of the spiders of Great Britain and Ireland* 2 vols.; London; The Ray Society; 1861–1864 [Down]

vol. 1 NB O/
℘

vol. 2 NB 189, 207, 355
189 *24–27m* **207** *16–18m* **355** *30–33m*

BLACKWALL, John *Researches in zoology* London; Simpkin & Marshall; 1834 [CUL, S]
beh, br, fg, gd, mg, mn, sp, t, wd, y

NB 3; 16; 29; 33; 46; 47; 51; 62; 73; 74; 80; 83; 86 Journal also; 89; 94; 122; 118; 136; 137; 141; 142; 151; 154 to 162; 174; 176; 190; 204; 227 Journal; 240; 245; 260; 270; 301
SB ❐ℜ
158 capacity of piping tunes in Magpie never used in Nature Q✍
174. cases of Jackdaw Rook & Woodpecker with monstrous crossed Beaks Q

3 *14–21m*
℘
16 *14–20m* **17** *1–7m* **29** *6–14m* **33** *22–27m* **46** *wt* Hence it will be important to show that Malay Fowls make diff noise from Common. *1–4m* **47** *20–24m* **51** *8–11m* **62** *23–27m* **73** *8–11m* **74** *24–27m* **80** *4–10m* **83** *13–17m* **86** *wt* Nor do all Icteri lay in other birds nest.– Is Molothus pecoris migratory in N. America (Yes I am almost sure Silliman?) *2–7m, wb* How easy for an ostrich to learn lay its eggs in other birds nests were there any of same size !!! **87** *wt* xx There remains to account for young birds expelling brothers.– Not invariably so Molothus in Sillimans Journal *1–7w* Blackwall suspects they do xx *5–13w* Cuckoos do not pair – a remnant of Ostrich state *14–20w* From 4 to 6 eggs *18–24w* No see p. 75 *wb* The causes of Ostrich laying ♣ in different nests, is the number they lay – Jenner? has said Cuckoos lay great number does Blackwall say so ?? **89** *8–21m* **94** *6–13m* **118** *11–15m, wb¢¢* **119** *6–7m* **122** *1–5m* **136** *23–27m* **137** *21–27m* **141** *6–12m, 20–27m* **142** *9–19m* **151** *23–27m* **154** *10–12m, 10–22m, 17–19m, 23–28m* **155** *1–7m, 16–27m, wb* The action of the old Pointer, they way look round & have known to go round other side of hedge. shows that they know what they are doing: (my theory will explain all this)– Lord Brougham says not knowing object – one chief criterion of instinct **156** *15–22m* **158** *16–28m* **158/159** *wb* Hence it would be odd if they did not sometimes acquire arts in wild state. The capacity of animals which can be shown by a thousand instances is in this view important.– **160** *1–6m* **174** *13–21m, 13–16*Q *23–27m* **175** *1–19m, 9–14m, 9–11*Q **176** *5–*

15m, 8–10Q **190** *8–15m* **191** *1–27m* **204** *9–16m, 12w* x *wb* x What a contrast to Martins & Penguins deserting their young.– In Pointer we see contest between two instincts, standing & springing game **227** *7–22m* **240** *1–13m* **245** *7–19m* **260** *2–15m* **270** *1–4m* **301** *1–5m, wb* Important with respect to Argynauter attaining habit.
⟨*℘ throughout*⟩

BLACKWELL, Antoinette Brown *Studies in general science* New York; G.P. Putnam & Son; 1869 [Down, I]

NB 209◆
209 *15–21m*

BLAINVILLE, Henri Marie Ducrotay de *Manuel d'actiniologie ou de zoophytologie* Paris; F.G. Levrault; 1834 [Down, on B, S] ℘

BLUMENBACH, Johann Friedrich *The anthropological treatises of Johann Friedrich Blumenbach, with memoirs of him by Marx and Flourens, and an account of his anthropological museum by Professor R. Wagner, and the inaugural dissertation of John Hunter, M.D., on the varieties of man* London; Longman, Green, Longman, Roberts and Green; 1865 [CUL]
beh, fg, h, he, sl, t, wd

SB ◆
191
203 Circumcision of Jews heredetary
205 → Man the most domesticated of all.–
292 ← good to show how quite ignorant B. was of selection
☞ 322 tadpoles hatched on back of adult in cells yet have tails!
191 *29–30m*◆ **205** *14u "is|advanced"* **290** *11m* **292** *11–13m/u "because|purpose", 15u "consequence of"* **322** *21–35m*

BLYTH, Edward *The natural history of the cranes* London; Horace Cox; 1881 [CUL]

BOITARD, Pierre *Manuel d'entomologie* 2 vols.; Paris; Roret; 1828 [CUL, on B]

vol. 1 title page S
✍ ⟨*all w are page-numbers*⟩
55 *4w, 10w, 15w, 18w, 20w, 24w, 32w* **56** *3w, 6w, 11w, 14w, 15w, 17w, 18w, 19w, 24w, 31w, 33w* **57** *1w, 19w, 20w, 24w, 28w* **58** *3w, 13w, 16w, 20w, 23w, 27w, 35w, 37w, 40w* **59** *5w, 6w, 10w, 16w, 18w, 22w, 25w, 28w, 30w, 31w* **60** *1w, 20w, 30w* **61** *24w* **62** *1w, 4w* **63** *6w, 12w, 17w, 22w, 30w* **64** *1w, 3w, 8w, 15w, 20w, 25w, 31w, 37w* **87** *26w, 28w, 30w, 31w*

vol. 2 title page Charles Darwin Rio Plata August 7th 1832

BOITARD, Pierre & CORBIÉ *Les Pigeons de volière et de colombier, ou Histoire naturelle des pigeons domestiques* Paris; Audot & Corbié; 1824 [CUL, pre-B]
beh, cc, cs, f, he, hy, ig, oo, phy, sp, sx, tm, v, wd, y

NB ➻ p 34 colours in crossing
SB1 Les Pigeons..
p.VII Introduction
It is a mistake to expect a tumbler suddenly to appear–
p.10; 15; 27 – ask Gould; 30; 34, 37; 54; 58; 64; 80; 120; 158; 163; 164,6 to 229; 235; 238
SB2 ❏β
Special facts on Pigeons not here included
12 Females show antipathy to certain males (Ch. 6.)
15 Roman keep Pedigrees of Pigeons Q
32 Account of many crosses
35 useful Pigeons more fertile (45 fear experience) p. 160 do.
36 Absorbed in 7 or 8 generations Q➾
37 Biset produced from complicated crosses Q – One cross the Cavalier always true Q➾
54 Pigeons of different size do not cross readily (Ch. 6.)
120 On Hawks observed to pick out white Pigeons; hence some owners examine all nestlings
158 By high feeding Dovecots rendered as fertile as Fancy Breeds (Ch. 3.)
165 The sailing Pigeons Q
173. Var of Pouter of which female never panachés – or chequered Q ➻
178 Claquart Q – 221 Turner or Smiter
200 Sub-vars of Nun – colours vary, but feathers coloured remain same Q
198 argument of intermediate form not being produced now as proof that both are species
208 Hybrid from Barb & Turbit very fertile Q
211 Turbit fly from Paris to Liege in 14 hours
224 Fan-tails crossed with any others lose character Q➾
235 Sterility of crossed Turtles Q
238 In crossing white & common collared Turtle, young take after one side exclusively Q➾

title page *u "Corbié"/w* kept pigeons for 45 years **vii** *26–31m* **10** *30–31m/wb* p. 12 **12** *1–15"...", 16u "six mois"/16–17m* **15** *1–2m, 7–9m/8–9w* See to this **27** *5–17m, 19–20m, 24m/24–25w* this must be mistake *27–31m/28–29w* what genus **28** *17–22m* **30** *23–24m* **31** *15–18m/16–19w* effect of cross long continued *27–31m* **32** *8w* common Pigeon *wb* Nonain – Jacobin **34** *6–9m, 9u "à | cavalier", 18–19u "souvent plombé"* **35** *7–12m, 20–22m, 24–26m, 30–31m* **36** *wt¢¢, 4a¢, 6–10m, 11–12w* 3d cross *14–17m/16–18w* 7 or 8 generations **37** *1–4m/3–4u↔/1–2w* !how odd Q✍, *17–24m/20–25w* how odd! Blue bars returning *wb* p152 description of Biset **54** *4–6m* **58** *24–29m* **64** *1–3m/!!!/a "effet"* sterility **80** *5–10m* **120** *14–19m, 30–31m* **152** *2u "ou | pur"/4–5u "toutes | ailes"/6–7u "du | queue"/3–8w* Dovecot & Chequered **153** *3–5m/4u "Chardin"/3–5w* What date 1686 in Ray Billi◗ **158** *5–10m* **160** *2–7m* **162** *22u "jadis estimé"* **163** *25–26m, 31m* **164** *13–14m, 17–21m* **165** *3–4m, 7–10m, 11–15m/11–13u↔/14u "moins haut"/15u "que | lillois", 17–18u↔, 23u "à | argenté"* **166** *3–6m, 13–17m, 16u "larvae", 23–25m* **167** *16–20m/17–22w* hence not wild, yet well characterized *29–31m* **168** *1–2m*/Q *5–9m/w* only colours **169** *9–10m, 16–19m, 20–23m* **170** *1–3m, 22–24m, 29–31m/29u "les | panachent" "de | petits"/28–31w* not wild **173** *7–9m*/Q✍, *9u* **174** *4–5m* **176** *3–6m, 15–18m, 22–23m* **177** *18–22m, 19w* variation *22–23m, 25m/26u "milieu | seul" "allongé | mince"* **178** *6–8m/6u, 18u "Claquart", 19u "Columba precursor", 20u "Pigeon batteur", 22–24m, 25–29m/25a "plongeur"* p. 165, *27u "enfle"* **179** *1m, 1–2u "ailes | yeux", 2u "chaussés", 3u "blanc", 9–14m/10u "M. Vieillot", 14–15m, 17–18m* **181** *1–2m, 8–10m, 21–23m* **182** *19–21m* **184** *2u*✍ *"Bagadais", 3–7m/4u "long | crochu", 7–10m/9u "leur | pates", 25–28w* Scanderosa certainly **pl. 9** *wt* Scanderosa **185** *5m, 9–10m/10u "Tous | peu", 15–16u "pigeon cygne", 19–20u "et | moindre"/21–22u "ordinairement | noir"/18–21w* just contrary to Brent **186** *11–13m, 15–17m, 24–25u "redoutable"* **187** *1m, 18m/u "nouvelles"* **188** *22–23m, 23u "excessivement farouche"* **189** *2–5m* **190** *11–13m, 23–28m* **193** *16–17m* **194** *4–5w* Archangel? *8m, 14–19m* **195** *21–23m, 23–24m, 24u "tête | vol"* **196** *5u "leur | court", 15–16m/u♠, 17–19m/18u "parce | conservent", 19–30m/23–24w* No blue **197** *8m, 20–21m, 23–25w* crossing & keeping part of character *24–30m/25–29w* !? Why narrow shakers? *27a/u "cravates"/w* p.210 *27a/u "coquilles"/23–25w* v. p. 199, yet nonains so near can be crossed & keep part of character *26u "paons", 27–28u "glouglou", 27–30m/wb* are not the characters chiefly trivial? How is it in crossing poultry with crests? **198** *whole ↕w* I do not see this argument. It presupposes that characters of a species cannot be transmitted to a hybrid: I know of no such case; on the contrary it might be argued those characters were not fixed – requiring both parents to have it *wt/1–6w*♦ This argument for certain number of races – in fact crossing will not do *midpage.w* Q, Q✍ **199** *↕w* &c pigeons with a Coquille can be produced p197 by crossing a nonain with a common pigeon *9–12m, 13w* The Coquille is reversed feather like nonain *16–26m, 17–20m, wb* Nuns **200** *2–5m/w* laws of colouring **201** *10–12m, 19–20m/19–26w* ! Yet has said that Coquilles will not transmit their peculiarities **204** *7–11m/9u "brièveté"* **206** *17u "carmes | soigne", 24–30m (Buffon)* **207** *10–11m, 21w* Barb? *23m, 26–27m* **208** *wt/1–2m/w* Ray talks of head of Turbit being square – *6–8m, 15–17m, 18–19m/?/18u "morilles en", 25–27m/25u "Il | polonais", 28u "Il | nourrit"* **209** *10–16m/w* Certainly Barb – nothing said about being wild **210** *12–14m, 18–20m* **211** *wt¢¢, 1–2w* 15 miles per hour *14–17m, 30u "un | yeux"/w* See to this *wb ¢¢* **212** *3–6m, 26–27m* **213** *4–5m* **214** *16u "bleu", 21–26m* **216** *9–30w* I shd think these were same as Antwerps **218** *16–18m* **219** *4–5m, 15–16m* **220** *12–13m, 23–28m* **221** *7a "culbutant"* Tumbler *8–9u↔, 12–16m, 23–26m* **222** *3–10m, 14–16m, 18w*✍ Spot **223** *17–19m, 26–27m* **224** *3–5m*/Q/!, *7w* p. 226 *20m, 23–24m* **225** *4–8m, 9x*✍, *12–13m, 14–18m* **226** *3u "faculté | relever", 4u "moins large", 8–15w* There have been several vars of this *24–27m* **227** *17–19m* **235** *3–8m* **238** *18–21m*/Q *22–25m* **240** *4wτ, 7w*♦ *τ, 8–9wτ 8a/uτ, 9m/u, 14u/wτ, 15–16u/wτ, 18–19m/u/wτ, 20wτ, 20wτ, 23u/wτ, 25u/wτ, 28a/u/wτ*

BOLINGBROKE, Henry, Viscount *A collection of political tracts* London; 1748 [CUL. 1900]

⟨*ink marks not CD; the following possibly CD*⟩
4 *4–12m* **6** *⇑20–3m* **64** *⇑12–3m* **65** *9–15m* **77** *12–15m* **140** *12–20m* **177** *6–12m* **185** *⇑15–13m* **187** *⇑4–1m* **189** *12–18m* **213** *1–3m* **217** *⇑10–6m* **219** *⇑11–7m* **220** *14–18m* **234** *⇑11–5m* **235** *⇑11–8m* **236** *9–12m* **245** *⇑8–6m* **247** *7–9m* **260** *15–20m* **264** *⇑12–8m* **265** *5–8m* **266** *⇑20–5m* **271** *1–4m* **285** *8–16m* **291** *⇑3–1m* **292** *1–12m* **295** *⇑14–8m* **311** *10–20m* **334** *3–10m* **346** *⇑5–2m* **347** *9–15m* **374** *⇑14–2m*

BOLINGBROKE, Henry, Viscount *A dissertation upon parties* London, 1739 [CUL. 1900]

133 *u/w¢* **269** *u/w¢*

BOLINGBROKE, Henry, Viscount *Letters on the spirit of patriotism* London, 1749 [CUL.1900]

⟨ink markings not CD; the following possibly CD⟩
18 ⇑*10–4m* **26** ⇑*10–1m* **49** *5–10m* **60** ⇑*8–1m* **73** ⇑*12–9m* **77** ⇑*3–2m* **91** ⇑*7–3m* **92** ⇑*12–9m* **118** *8–10m* **135** *6–8m* **138** ⇑*10–1m* **148** *4–9m* **157** ⇑*8–5m* **159** *2–10m* **161** ⇑*8–5m* **169** *6–10m* **175** *1u "steddy", 4–6m* **179** ⇑*13–8m* **190** *10–13m* **192** ↕*m*

BONAPARTE, Charles Lucien *Coup d'oeil sur l'ordre des pigeons* Paris; Mallet–Bacheler; 1855 [CUL]
ad, gd, tm

SB ☐β
3 – On number of tail-feathers – 16 in Goura – ♣ Q
21 Birds of E & W Africa often same, but different at Cape
44 Balancement – long tarsi & short toes in the Phaps group
50 Zenaida American group – Galapagos

2 *26–27m, 30–33m, 32u* **3** *9–10m, 10–11*Q✍, *11–12m, 11u "pattes | plus", 12u "douze", 16u "quatorze | seize", 29u "s'élève | seize", 34–37m* **4** *13u "première | sont"* **5** *5–10?, 25u "orbites nues", 26u "rémige échancrée"* **8** *14u "quatorze | pennes"/13–16m/w* The Pptilopoda ought to have 14 **12** *27–30m, 32u*✎ *"les | développé", 34–36m, 35u "presque | oeuf"* **13** *2–3m* **19** *14m, 15–18m, 15u "douze", 16u "sous-famille", 16u "seule cosmopolite"* **20** *27–29m, 27u "genre | deuxième"* **21** *30–35m* **22** *21–24m, 30u "Col. livia", 35–36m* **23** *4–5u "deux | caractériser"/4–7m/4w* orrupion blanc., *5–18m, 8–9u "clair, gris-bleu", 15u "plus d'assurance", 19–21m, 20u "C. | retrouve", 26u "d'un | ou", 37–39m* **25** *12–19m, 28–33m* **44** *3–8m* **50** *8–12m, 9m, 10x, 9–10w* Zenaida at Galapagos good case **51** *12–17m* **52** *15–21m*

BONAPARTE, Charles Lucien *A geographical and comparative list of the birds of Europe and North America* London; John Van Voorst; 1838 [CUL, S]
gd

NF go through this list with D'Orbigny & self & see what birds common to N. of America & Europe
NB 35 Nothing in particular on birds
35 *26m* **45b** *19w* Galapagos *47w* Rio Plata **46b** *26w* Rio Plata **47b** *9–10w* Galapagos *17–18w* Rio Plata **48b** *25–26m* **49b** *5–6w* Rio Plata **50b** *13–14w* Tierra del Fuego
℘

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BONNAL, Marcel de *Une agonie* Angoulême; F. Lugeol & Cie.; 1877 [Down] ℘

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vol. 1 NB 160; 167
130 *30–34m, 31u "petit accroissement"* **160** *18–20m/21u "deux | Eté", 22–24m/23u "jusqu'à | fois"* **163** *2–6m/5u "douze fois"* **167** *10–12m, 24–28m* **267** *17m* **268** *15–16m, 24m* **269** *19m* **271** *2m, 5m*

BONNET, Charles *Recherches sur l'usage des feuilles dans les plantes* Göttingen; Elie Luzac; 1754 [Botany School, FD]

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9 *1–4m* **17** *5–9m* **19** *9–11m* **27** *1–3m* **42** *23–25m*

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BOSTOCK, John *An elementary system of physiology* vol. 1; London; Baldwin, Cradock & Joy; 1824 [Down, pre-B, ED]

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cc, gd, he, oo, pat, sp

vol. 1 SB ❑β
✐ xliv
l–lii; p. 201
→p320 ⊸ number of animals killed in France, showing how one animal increases; ⊶ compare with ravages of wolves
p.347; p.392; p.406
✎ Poor Book
✐ The introduction gives all the most important cases; which show that climate & race affects the constitution; if so why not the progeny?

xliii *35–38m* **xliv** *1–36m* **lii** *12–38m, 16–19m* **1** ✎ *9–17m, 23–27m* **201** *15–20m* **320** *29–33m* **347** *25–28m* **392** *31–32m* **406** *14–23m, 14–18m*
Catalogue ℘

vol. 2 SB <u>Vol 2</u>
✐ 295; 317; 321, 322 ✏ Bouton d'Aleppo
401 ⊶ Negro diseases
445 ⊶ Elephantiasis
529 ⊶ Deaths of different Races in Ceylon
648 ⊶ – do in Jamaica.
Most of the local diseases probably◆ have local cause but it shows what little causes act, unperceived by us & act differently on different races – may as well produce differns of structure, as such diseases as the Bouton of Aleppo

295 *2–5w*✐ strictly local diseases **317** *12–15m*✐*, 24–26m*✎ **321** *3–5m*✐ **322** *7–19m/w*✐ drinking certain water saves from Bouton **401** *7u "être|noire"* **445** *11–17m* **529** *35–41m* **648** *4–11m*

BOUÉ, Ami *Autobiographie* Wien; F. Ulrich und Sohn; 1879 [Down, I] ℘

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SF 63; 65; 71; 72; 73; 79; 81; 87; 89; 90; 91; 93; 97; 98; 99; 101; 108; 111; 129; 137

BOWDLER, Jane *Poems and essays* Bath; 1819 [CUL.1900]

125 *3–6m* **130** ⥣*6–1m* **131** *1–3m, 10–14m* **134** ⥣*3–1m* **135** *1–10m* **177** *9x,* ⥣*4x* **178** ⥣*9m* **223** *5x/w* **29** **227** ⥣*4x* **229** ⥣*3x* **232** *3x* **235** *11–16m/16x* **239** ⥣*3–1m* **240** *1–15m* **242** *5–10m* **245** *1–10m, 11–18m* **249** *1–8m,* ⥣*15–9m* **258** *4–10m*

259 ⥣*6–1m* **260** ↕*m* **264** *2x,* ⥣*12x* **265** *3x* **266** *5x* **268** ⥣*8x* **270** *1–12m*

BOWERBANK, James Scott *A monograph of the British Spongiadae* 4 vols.; London; The Ray Society; 1864–1872 [Down]
ad, hl, tm, v

vol. 1 NB Even in so lowly organ. bodies as Sponges B has shown the special uses of the wonderfully diversified & curiously formed Spicula –
℘
⟨*vols. 2 and 3* ℘*; vol. 4 ed. by A.M. Norman*⟩

BOYER, Abel *Le Dictionnaire royal françois–anglois et anglois–françois* New edn, 2 vols.; London; J. Rivington; 1816 [Down, pre-B, ED]

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h, v

NB 388 correlation of colour of skin; 392 smells emitted by Human beings
℘

BRADLEY, Richard *A general treatise of husbandry and gardening* 3 vols.; London; T. Woodward; 1724 [CUL, pre-B, each vol. S of R.W. Darwin]
ch, fg, phy, v

vol. 1 NB 43◆ Ash Tree – 199◆ – White edging leaves common by graft; 132 black and white grapes, & striped on same plant; 298◆
43 *6–8m* **132** *19–26m* **199** *2–5m, 21–27m* **201** *25–37m* **202** *1–6m* **298** *15–21m, 15–16w* 1724 *20–24m, 21–26m* **299** *zb*

vol. 2 NB p.16; p.172◆; p.172◆
16 *26–31m, 39–48z* **171** *22–30/22u "soft"*

vol. 3 NB 1722; 40◆; 58 on good from change of Seed; 60◆; 90◆
40 *30–33m* **41** *7–15m* **58** *20–22w* in 1724 *21–31m* **59** *1–5m* **60** *2–17m, 7–15w* A.O. 1722 *11u* **90** *14–40m* **index, p. 3** *12m, 16m* **p. 4** *25m* **p. 6** *13m* **p. 7** *24m* **p. 8** *18m*

BRADY, George Stewardson *A monograph of the free and semi-parasitic Copepoda of the British Islands* 3 vols.; London; The Ray Society; 1878–1880 [Down]

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beh, cc, sl, sp, t, ta, v

NB 78 Variation accidental as far as good of animal is concd
♦✏ Origin
♦✏ 102 Sp. Th.
♦✏ 132 Origin
♦✏ 157 Origin
♦✏ 168 good No; 222 Origin; 222 Sp Theory; 252 aphis
✏168 Look to – may not different castes of ants be produced by different food
✏222 on variability of Larvae
✏252 on aphides & Ants.

60 *6–8m, 18–22m* **78** *wt* He must think other species *4–5m, 5u "uncomfortable", 7m* **102** *10–29m, 22–24m/22w* good **103** *4–6m* **108** *26a/u¢, 25–27w* time of – no **132** *19–32m* **157** *4a/u "same"/w* similarity *7a "these"* several **166** *3–7m* **168** *wt*✏ Plant produces 2 forms *wb* yet wd be due to selection of instincts *15–23m* **222** *11–13m, 15–22m, 25–28m* **223** *26–29m* **252** *11–23m*

BREHM, A.E. *Illustriertes Thierleben* 4 vols.; Hildburghausen, Verlag der Bibliographischen Instituts; 1864–1867 [Down]
beh, br, gd, sx, tm

vol. 1 NB 75 Baboon like spirituous drinks & orang like tea & coffe & wine?
♦pxxx about polygam?
♦xxxvi about pairing
♦p261 Baboon & Leopard
p.119 stopped reading March 2d
p77 apparently polygamous Q
108 Poly & ●

title page S 11 *6–9m, 10–14m* **23** *14m* **25** *35m* **30** *29–30m* **33** *7m* **35** *8–9m* **39** *23–45m, 30u "Siamang", 32u "freudiger"* **40** *17–23m, 21–22u "seine | an", 23m* **47** *16–18m* **50** *21–22m, 24–31m* **52** *16–17m* **53** *wt* Tail *1–3m, 7–8m, 27–31m* **54** *10–12m* **56** *1–5m, 9–12m, 11–13m, 20–23m, 31–39m* **58** *17–23m* **59** *3–6m, 9–11m, 9–11m, 22–25m, 22m* **60** *1–4m* **61** *11–12m, 11m, 17–18m* **62** *33–36m, 34–36m* **65** *20m* **67** *13m* **68** *16–20m* **70** *1m, 16–19m* **72** *46–48m* **74** *24–32m* **75** *1–5m, 2–3w* get drunk *12–14m/12–14w* distinguish male & female *33u*♠ **76** *27–40m, 47m* **77** *6–9w* lives in Tropics 15–20 to 150 *10u "und | Weibchen", 12u "Mantel", 13–14u "die | Mutter", 44m* **79** *8–35m* **80** *7–26w* Saw them roll down stones, as large as head, so as to close the pass for the caravan – act in concert & use tools.– also defend each other for the males advance **81** *18–19u*↔ **82** *wt* old male Hamadrya & Geledons fight & tug each other by the long man or mane of Hair, & roll down stones against each other *28–31m* **84** *3m, 7–11m, 7–14w* hits the ground when in passion with open hands – as in Garden. *22–27m* **85** *wt* X Master shown by pretending to strike him, & the pretender instantly recognised.– Mat on shoulders to protect from heat of sun *25–26x* **86** *1–5z, 9–11w* very fond of riding apes *13–19w* very fond of Beer – headache after being drunk *44–48w/wb* very much afraid of Lizards & Frogs & Lurchen yet very curious like Orang with Turtle– *45–48m* **87** *wt* X one individual of distinguished intelligence – very fond of all young animals – & when kitten scratched him, bit off claws. *12x, 28–31m, 29w* about food *34–39m, 42m, wb* very clever in stealing & conquered Dog **88** *17m* **91** *3u/w* fright *7–10m, 8u "hellbraun", 10–12u "In | gefärbt", 46m* **94** *25m* **96** *8m* **101** *18m, 35m* **103** *17m* **107** *21–22w* Polygamy **108** *19u*♠, *33–34u*♠*/34wτ, 40–41u*↔ **111** *22–24m, 24u*↔ **112** *2m* **113** *13–14z* **114** *17m* **116** *21m* **119** *10m* **120** *16–20m* **124** *32m* **128** *9m, 43–48m, 48u* ↔ **129** *1–6m, 6u*↔, *35m* **130** *11–13m, 11u "aufgeregten", 12u "sich | möglichst"* **261** *3m*

vol. 2, 729 *11u "die | Schild"* **731** *20–29m, 26–28u*↔, *31–33m, 36–38m, 37u*↔, *40–41m* **732** *10–16m, 13u "auf | fallen"* **743** *13–14w* upcurve *fig.z, fig.w* these ought to curl a little more outwards (see Wallace – correct by him; Reduce Wallace's drawing & face same way with Boar *14u "rückwärts", 17–18u "Die | kurtz", 19u "ragen | sie"* **745** *15–17m, 15–16u*↔, *34u/wτ*

vol. 3 NB 236 Vidua; 322 Paradisea; 745 Rupicola
236 *5–9m, 18–20m, 19u "feuerroth", 23u "roströtlich", 40–44/42–43u "paarweise"* **237** *3–5m, 4–6w* sings when in fine plumage **292** *15–18m, 15u "bedeutend kleiner", 16u "ist | auf"* **293** *4u/wτ, 6u/wτ, 11–12u*↔ **325** *1–4m/1–2w* long feathers *9–12m, 9u "sonderbar | Geräusch"* **326** *24u "Bennett's", 26–32w* cannot bear any dust on feathers

vol. 4 NB 351 Courting of black cock; 991 on Courtship (?)
352 *9m, 14–15m/19m* **469** *2–6m, 18–20w* tailfeathers & secondaries *18u "ungemein |*

stark" **473** *10m* **990** *29–31m, 29–30w* few polygamous *33u "Da|gibt"/33–37w* more males than female

BREHM, Alfred Edmund *Tierleben* 2nd edn, Grosse Ausgabe, 9 vols.; Leipzig, Verlag der Bibliographischen Instituts; 1876–1878 [Down] ℘

BRENT, Bernard P. *The canary, British finches, and some other birds* London; Journal of horticulture and cottage gardener, n.d. [CUL]
hy

NB p.21; p.22; p.30; p.109 Hybrid Canaries
21 *8–12m* **22** *19–21m/20u "feather-footed"* **30** *12–16m* **55** *7–11m* **109** *32m*

BRENT, Bernard P. *The pigeon book* London; Cottage gardener office; n.d. [CUL]
br, hy, oo, v

NB *w*✍
Q p4♦ 13 – Hybrids with C. Oenas
Q 41 – Kite Tumbler after spl◗ing become black
46 Trumpeter 1/16 blood not trumpeting
55 – Lace Fantails always give lace to offspring what a contrast with my Japan silk Fowls!
60 – The story about Hawks killing tired Carrion wrong.
•◆ 36 definition of splash pigeon

13 *6–12m, 14–16m* **36** *41–47m* **41** *12–18m* **46** *20–31m, 28–31m* **50** *zt* **55** *27–31m* **60** *20–22m*

BRIGGS, Thomas Richard Archer *Flora of Plymouth* London; John Van Voorst; 1880 [Down, I] ℘

BRIOSI, Giovanni *Intorno un organo di alcuni embrioni vegetali* (extr.); 1882 [Down]

British Association *Report of the third meeting of the British Association for the advancement of science held at Cambridge in 1833* London; John Murray; 1834 [CUL, S]

SB Brit Assoc Vol 3; p. 50 x; p. 447; O/ Octr. 1857

50 *17–29m/w* Hooker quite agrees **446** *15–20m* **447** *21–26m*
℘ throughout

British Association *Report of the eleventh meeting of the British Association for the advancement of science, held at Plymouth in July 1841* London; John Murray; 1842 [CUL]
em, fo, gd, hl, ig, ir, sp, t, ti, tm, ts, v

SB1 1841; p. 77; p. 96; p. 173; p. 181 Waterhouse – low in scale; 185 185; 186; 192; 193; 196; 198 to end.–
SB2 ❑β
96 Different form of Vertebrae in ant & post part of column. Ch 7. Kinds of Transition.– ◊
173 Owen intermediate fossils – 185 – 196 Summary on do
181 do – animals on confines of groups present great differences
197. Argument (Owen) against Transmutation – Resting on assumed rise in development – Grand discussion.–
201 Embryology of recent Reptiles resembles ancient
℘

77 *49–54m* **96** *44–50m/?* **173** *37–45m, 44–47m* **181** *23u "like|a"/21–27m/1–24w* this is like Waterhouses remark that low groups vary much, *29–34m/29–51w* according to this, if there were many Monotremes, they wd vary much.– **185** *41–48m, 46u "Pleiosaurus"/46w* Enaliosaurians *49–53m/50u "other fishes"/w* p.186 *53–54*→ **186** *30–32m* **192** *36–41m/1–44w* As species are long lived (must be!!) so are genera – how is this in Mammifers Badger long–lived – Carnivora in Eocene **193** *33u "terrestrial"/31–49w* These cd have been np terrestrial Mammifers for 70 specimens of Iguanodons have been found **196** *9–11m, 13–15m, 20–22m, 24–30m, 36–38m, 48–52m* **197** *21–25m/33–37m/1–35w* assumes the series to be perfect & a tendency to higher development – **198** *12–14m/12–42w* must confess even on my view imperfection of record surprising – *22–25m, 36–38m, ⇑8–2m* **199** *3–5m, 7–9m, 18–30m, 32–44m, 49–54m* **200** *1–8m, 29–33m, 45–51m, whole ↕w* Do those geologists who tacitly think the record pretty perfect – think that there were only 3 Mammifers during Oolitic & only . – Reptiles during Carboniferous & so many in Permean & ♣ Triassic **201** *22–25m, 36–41m, 43–50m* **202** *6–8m/w* Falconer *11–15m, 21–24m*
℘

THE BRITISH AVIARY London; Dean and Munday; n.d. [CUL]

18 *↕m/"...* **20** *8–18m* **25** *wb* 2 **32** *⇑8–1m* **33** *6–14m* **34** *8–16m* **40** *6–14m* **43** *4–10m* **50** *⇑4–2m* **51** *1–2m/m* **57** *⇑10–7m* **68** *1–4m*

British Museum (G. Busk and J.E. Gray) *Catalogue of Marine Polyzoa in the collection of* *the British Museum* 2 parts; London; by order of the Trustees; 1852/1854 [CUL]

Part 1, 39 *1–4m* **44** *18–22m* **54** ⇑*13–11m,* ⇑*9–5m* **Description of plates, iii** *"pl XXII".m*

Part 2 NB ⟨*not CD*⟩
67 *3–8m,* ⇑*11–7m* **70** *2–4m,* ⇑*16–14m* **83** *16–19m, 24–27m* **84** ⇑*3–1m* **94** *7–9m* **104** *3–7m, 16–21m, 19–21m/21...", 29–33m* **105** *13–26m,* ⇑*11–1m* **106** *1–7m/2–7"..."/2a "seta"* & the *2a "observed"* ● ⇑*4–1m/*⇑*3u "avicularia | far"* **107** *8–11m/w* Both avi⟨*cularium*⟩ & vibr⟨*acula*⟩ **108** *table.m*

British Museum (J.E. Gray) *List of the specimens of Mammalia in the collection of the British Museum* London; by order of the Trustees; 1843 [CUL]
gd, geo, is, sx

Part 1, 2 *1u* ⟨*u henceforth* ♠⟩ **4** *1u, 11u* **5** *19–21m/20u, 33u* **6** *21–25m/21u* **7** *6u, 16u, 25u, 33–34m/33u* **8** *1u, 17u* **9** *29–31m/29u* **10** *16u, 20u, 24u* **11** *17–18m/17u, 21u, 26u* **12** *18u, 32–24m/32u* **13** *18u, 27–29m/27u* **15** *18u*

Part 2 *front and back blue covers.w* Seals
NF What seals Kergueles Isd Aukland & Campbell Isd Azores S Shetland Georgia Ascension? Falkland Seals – ice-action
NB There is no case of Seal confined to single isld So not case parallel to Bats.– No species common to N. & S. but species of same genus N. & S. – In fact nothing for me.–
p22 & 24 Caspian Seals It is a Northern genus alone

viib *15–16w* Fur seal **viii** *13–14w* representative species in North *22–24m/23u "Ursinus", 31–40m* **2** *34–37m* **3** *41–43m* **13** *23w* Packed ice *33m/u* ⟨*u henceforth place-names*⟩ **14** *6–8m/17–18m/1–18w* Ice does not come to New Zealand **16** *23–25m/24u/25u, 41–42m, wb* Distance from S. Orkney to Tierra del Fuego **17** *4u* **22** *31–39m/32u/33u/36u/37u* **24** *wt* good case as identical species in P. viz P. vitulinus Hardly because may have ranged further formerly *9u, 11–13m, 36–37u* **34** *41–42m/41u, 43–44m/43u* **35** *31–33m/31u/32u, 41u, 45u* **37** *21–24m/21u, 38u, 40–43m* **43** *20–22m, 24–32m* **45** *38–39m*

Part 3, viib *19m, 23w* ? common **viiia** *17m*♦, *36w* C Aegoceres *38m/u/w* Aegoceres **viiib** *16–17m, 19–21w*✍ C Dar & ♣ *29–32m, 32w*✍ Smith *34m/w* Babing *36–37w* Colours **ixa** *4m/w* Colours **48** ⟨*u henceforth sex-differences*⟩ *4u, 6u, 8u, 10u, 18u* **100** *5–6m/5u, 36–40m/36–37u* **104** *30u* **106** *37–40m* **124** *20m* **128** *2u* **133** *1u, 5u* **134** *22u* **136** *6u, 25u* **137** *30u, 35u* **139** *26u* **141** *7u, 14u* **142** *33u* **143** *5u* **144** *16u, 16–17u* **146** *33u, 40–42m*✍ **147** *28u, 30u* **148** *19u, 20u* **149** *6u, 7u, 14u, 17u, 20–21u* **150** *7–10m, 8u* **151** *35u, 36–37u* **152** *24u* **153** *4–5u* **157** *9u, 15u, 16u, 17u, 19u* **160** *18u, 31u, 37–40m* **171** *36u "in male only"* **172** *37–40m* **177** *35u* **179** *18u, 23–25m, 42–43m* **185** *20–22m, 28–30m* **216** *40–43m* **220** *29–31m* **242** *24–28m*

British Museum (F. Smith) *Catalogue of British Hymenoptera in the collection of the British Museum* London; by order of the Trustees; 1855 [CUL]
beh, fg, mhp, oo, sp, sx, tm, v

NB ♦ p225 Ask about accidental other species ✂ they lay their eggs
SB1 ❒ℜ
16 ♦ How far mixed; 46; 114; 117; 118; 144; 158, 161; 108 to end
SB2 ❑β
16 Mixed colourings of 3 genera & 5 species. Wd not blindness of instinct lead them to become parasites
46 The bee whose larva preyed on, does not interfere with Parasite Bee Q
117 The parasite closed nest in some cases NQ
158 Great diversity of instincts of Bees of same genus: variable in species also Q
174 Males in one genus, female in another hard to distinguish
185 diversity of Habits NQ
211 Bombus diversity in nests Q
225 on occasional presence of working Bees of different species, in nests of others Q

1 *7u "added | one"* **2** *wb* for Apidae p 113 **16** *wt* Fabre believes certain Sphexidae occur only parasitic *2–5m, 9–10m, 13–15m/13u "a mixed", 18–22m* **46** *1–11m, 11–13m, 25–30m* **56** *zt*✍ **114** *20–21m/w* Hibericum **117** *19–23m, 26–32m* **118** *14–22m* **144** *25–30m* **145** *16–18m* **158** *10–14m, 10–28w* variable situations of nests *11–28w* variable in species & genera *21u*♠, *34][/u*♠ **159** *9–12m, 12u*♠, *13u "burrows | banks", 20m, 25–26u*↔, *44–46m* **161** *10–14m, 10u*♠, *12u "underside | lying"* **173** *32–37m* **174** *18–22m, 23–31w* In Andrena it was the males which were so difficult to distinguish *27–30m* **185** *wt* Megachile a leaf culture, what diversity of Habit– *11–14m* **208** *22–26m, 29–31m* **209** *42–46m* **210** *12–16m* **211** *44–46m/wb* Build in different situations & use moss → **212** *6–12m, 14–18m, 43u/w* 2 **213** *15u/w* 3 *25u/w* 1 *36–39m/Q/36–38u "in | numerous"/wb* These varieties are males females & workers **214** *23w* 1 *32–40m, 32u,* *37u/w* 21/2, *40u/w* 1 **215** *7–11m/8–10u, 21u/w* 2 *33u/w* 3 *36u/w* 1 **216** *22w* 2, *29u/w* 2 *31w* 1 **217** *23w* 0 *34w* 1 *38w* 0 **218** *22w* 2 *30w* 2, *32w* 1 **219** *25w* 11/2 *29w* 11/2 *31w* 1 **221** *1w* 2 *10w* 1 *16w* 1 *26–30m* **223** *4w* 1 *9w* 1 *11w* 1 *33z*✏ **224** *33w* 2, *38w* 1 *zb* ✏ **225** *4w* 1 *18–30m, 18m, 22u "workers"* **226** *21w* 1 *24w* 2 *26w* 21/2 **227** *22w* 1 *34w* 2 *39w* 1 **229** *18w* 0, *24w* 11/2 **230** *27w* 0 *32w* 11/2 *34w* 1 **231** *21w* 0 *32w* 2 *36w* 2 **233** *7w* 1 *23w* 3 *26w* 2

British Museum (T.V. Wollaston) *Catalogue of the coleopterous insects of Madeira in the collection of the British Museum* London; by order of the Trustees; 1857 [CUL, I]
is, sp, v

SB ❑β
Whole Introduction marked
♦p85 note Canal Elateridae Telephoridae
vii *11–19m, 11–13w* dele these 3 vars. *16–18w* add 5 vars. **viii** *6–10m* **ix** *3–4**, 7*, 14–15w* Italics *16u "far", 25–28w¢¢* **x** ⇑*13–11z* **xii** *32–36m* **xiii** *12–14m, 19–30m* **xvi** *wt* The species f. on all 3 islands, are all rather indigenous *4–9m* **1** *zb* **207** *wt* The numbers to left hand are the vars. to each species added from great Book & corrected in few cases.– Omit in counting all those marked by one or two Asterisks (a.s counted) *5*, 10.3 ⟨ie, line 10, CD writes '3' to left hand⟩, 17.4, 30.1, 34.1, 42.4* **208** *2.1, 5*, 10.1, 12*, 15.1, 20.1, 23.3, 31.1, 34.1, 39.1, 52*, 53.5* **209** *2*, 4*, 17–19c, 26*, 39.1, 43c, 44c* **210** *5.1, 39.1, 42.1* **211** *5.1* **212** *29*, 30*, 40** **213** *12*, 21.1, 29** **214** *11*, 17*, 20*, 27.2, 29** **215** *6.5, 14*, 25*, 33*, 41.1* **216** *16.4, 19.1, 21.1, 27.2, 28.1, 50.1* **217** *15*, 27.2, 34.1, 35.1, 40.1* **218** *22.1, 26.2, 32*, 43.1* **219** *10.1, 17*, 20*, 26*, 28*, 28.1, 29*, 34*, 35*, 36.2, 42** **220** *7.1, 10.1, 11.1, 13.5, 18.1, 41.1* **221** *7*, 29*, 31.1, 38.4, 39.2, 43.1, 44.2, 45.2* **222** *12*, 14.1, 17.1* **223** *7.1, 17*, 27*, 28*, 33.1, 44.1, 53** **224** *2.1, 24*, 26*, 46**
Catalogues of the zoological collection in the British Museum **8** *zb*

BROCA, Pierre Paul *On the phenomena of hybridity in the genus Homo* London; Longman, Green, Longman and Roberts; 1864 [CUL]
f, h, he, hy

SB 25 Definition of fertility in hybrids; 38; 39; 40; several statements to this effect – quote when I speak of inferiority of Mulatto under Reversion
18 *21–26m* **25** *19–34m* **27** *29–36m* **30** *12–18m* **33** *23–26m, 28–32m* **36** *9–15m* **37** *19–24m* **38** *5–12m, 22–26m* **39** *18–21m, 32–33m/w* Proc R **40** *28–30m* **49** *7–11m* **60** *7–34m* **63** *10–13m, 12u "indirect communications"* **66** *15–19m*
℘

BRONN, Heinrich Georg *Handbuch einer Geschichte der Natur* Stuttgart; G. Schweizerbart; 1841; 2 vols. and atlas [CUL]
ad, af, beh, br, cc, cr, cs, ct, em, ex, f, fg, h, he, hy, ig, is, mg, mn, oo, sl, sp, sx, tm, ts, ud, v, wd, y

vol. 1, xviii *12–13m* **378** *31–33m*

vol. 2 **NF** When in doubt for reference see Index to first time name is mentioned
SB ⟨*10 sheets, numbered 2–10, 12*⟩
2
Bronn. Geschichte Th. 2
Cross means useful
a p.93 cage-birds deprived of light become black & snow insects from ♣ same cause do–
p.96. birds black from food & being in dark places, generally assume proper colour next year .– (Bechstein)
X p.do (b) nestling goldfinches in cage covered with cloth all became black, resumed colour ♣ next month
do (c) fe♦ male pyrrhulas took on plumage of female in cage (other cases analogous)
(d) Hence light has influence, & whiteness of polar animals perhaps effect of snow-light
Negros!!
Introduce discussion.– though polar animals may have been created white & beetles under stones black, we yet know that it is possible they may have been so altered.– Against relation between tadpoles & Siren
X Q (e) Beetles become darker & darker (traced by gradations) till black on snow-covered 7000–8000ft summits of Alps.– but thought species by some authors – so in going to pole: hence climate, though opposite effect on Vertebrata, such beetles must in pupa or larva state must be long under ground
3
p. 99 (a) yellow var of Zygaena not found at Erfuhrt, but common in south Germany.–
(b) accounts for increase of cattle in Australia from greater birth of cows to Bulls 3–to–1 & in Man ??!
(c) Rabbits & Hens breed much oftener, in domestication, with food &c, than free
p.100 (a) quote Roulin on infertile geese, when taken into America & Garcilasso for hens not procreating; though now become fertile, yet game-cocks from England are

less so.–

p.101 (a) late eggs of butterfly produce a different variety from early eggs

p. 102 (a) much food increases fertility:– mountain sheep produce only one lamb; whilst lowland more & if former brought into good pasture, even in first year produce more than one; on other hand, Marsh-sheep taken to mountains retain fertility for 3–4 generations [How opposed to Doubleday!] X

X109 Hares larger & smaller in Woods & Fields

p110 Most important: Gloger thinks similar differn in feathers of wing in Ducks, especially Musk-Duck differences between migratory & stationary birds of same species.= X

⟨4⟩

p111 change in stomach in owl for vegetable food (a) X wh. caused it to perish X alludes to milking of cows – I may say difference is sudden in La Plata

(b) In pig-races, wh. have many young more tits give milk than in less fertile races.

p113 X Difference in Habit of single & many Beavers.

p. 113 (a) Rabbits much ferreted (?) taken to live in farms (F. Cuvier): anyhow a variation in habits

117. Latent instincts in animals become feral ✍ie tameness

p. 117. It is important to consider whether the male in plants or animals (V. Koelreuter) can propagate the sportive tendency, because if so it will show, that the varying tendency in the generative system, under domestication, is the effect of impregnation & not the womb influence. In fact if fish & silkworms vary much, it cannot be foetal influence X|| (Yes it may in Egg), nor indeed in birds, as the mother only influences the egg by its warmth, after a very early stage:

p.118 (a) origin of most varieties of plants, through sports by unknown causes.

p. 118 (a)(a) attribute sporting of apples & such like to the transplanting, pruning &c, wh. they have undergone. [no. corn sports as much as anything)

5

p.119 when a man has once got an ◊ variation (a) (or through bastardising), then he can easily go on raising more & more. ie variation tends to increase. [this comes very near to my facts]

p119 (b) No character resists variation in cultivated plants; in lesser degree in wild state: cannot compare effects of nature during course of years, with our during a few years.–

X|| p.120 (a) is said, that Dahlias at first sported on single characters, & then in less degree in all: this very important, from analogy to wild (& whether relations of sub-genera to genera)

X 121 variability of heredetariness in weeping ash & Peach

p123 (a) cases of sports in Dahlia flowers; & of whole plant producing different coloured flowers Geranium do – Dianthus – case of wild Achillea do

(b) apple with no petals or stamens, but 14 styles; fruit peculiar, when impregnated.

p124 (a) curious account of seeds of a Carduus sown – one young plant came up different, & the seedling for 3 years from it same, & then on same soil lost one of its chief ch◗◊

6

p 127 (a) subsequent offspring of a mare, affected by having once produced a mule. & sow so affected from a cross with wild Boar & on two races of dogs

p.130 (a) tailless fowls appear to have an abortive unformed, knotty projection, instead of the Cuckoo-Bone

p.130 (d) left wound snail can pair with only left – but young are right, in Helix pomatia (contrary to Sowerby)

p.131 Tail feathers in waders & webs sometimes X vary in number – Gloger & Hodgson (references)

p132 (a) case of carp (which bred true) with 4 times larger scales in lines, with some places bare X – call Looking–glass Carp.–

X p.132 (b) Indian races of sheep & oxen where female hornless – he compares it with deer-tribe.

X p.132 (D) cow lost left horn by suppuration, afterwards had three calves with left horn a mere stump attached to skin.

X p 133 (a) Bug generally apterous, found in marshes with wings elytre bred in a house produced offspring with abortive wing ◊ M DictionaryO [case where we know what an abortion]

7

p 135 (a) – remarks that the nature of the affinity in plants, wh. favours crossing is not known – because

p141(a) Gartner not external similarity.

some of the closest species have not offspring when crossed; & because some genera, especially amongst the Monocotyledons will scarcely cross!

(b) No cross of two species produces as many seeds as the ♣ true species; yet

above says it is sometimes easier to get fertile seeds, through cross, than with no cross.–
p136 (a) remarks on uncertainty of Koelreuter experiments, how many trials necessary – first flowers fail – K. saying all that are fertile are vars., is arguing in circle.–
Good summary of Crosses =
141. (b) genera crossed with difficulty
p146–(a) [good summing up of results of Hybridisation
(a) seems to think, the more remote, the crossed species & the more intermediate the offspring, the less fertile they are & more subject to monstrosity which particularly affects generation system(?)
p147 (b) –How odd it is hybrids crossing easier ◊ parents than ◊

8

It is important to show in Azaleas, in (p.147) Lilacs, in animals, that the sterility is not due to tendency to vegetate or to increase of fruit &c.– but to some direct influence on propagating system.–
p. 147 (b)(b) remarks from Köl, that variation in hybrids, depends on the parents (or parent?) having been domesticated, or tending to vary –
p148 (X) It wd be easy to take 100 double flowers & count, which has male & which female part most affected
p.152 (a) From Koelreuter, hybrids self impregnated. others lose or retain their small fertility, or approach to one parent in form & gain in fertility
p152 (B) Lindley on Hybrids not propagating in the 3d generation. X
p154 (a) – hybrids not intermediate between parents (as by Koelreuter) but seldom!! in some parts like father, in some like mother Gartner

9

155 (a) Gartner. Hybrids the more fertile the nearer they take after the mother-side, less so, the nearer after the father side Hybrids go back to Mother side ! Herbert says just different
155 (B) says Hybrids from same species differ (??) & that the facility of impregnation depends on the selection of the sexual organs, & not as general relations. Reverse crosses similar offspring
p.156 (a) He says some species of a genus ♣ impress their characters on hybrids, much more strongly than other species (does not d'Orbigny assert this in some Indian Races?)
p156(b) He says either return to mother, or lose their procreative faculty

X p156 Passiflora more fertile with other pollen than own.

10

p. 164 (a) in making hybrids the female generally resists male; so that male donkey must be painted like zebra to cross with mare zebra
Mares will only take stallion-donkey in dark, & stallion horse must never have ♣ seen mare before – alludes X(d) to physical difficulty of crossing some races
X(e) Buffon says that female foxes, dogs, & wolves though in heat drove off with bites the males of other species.
(f) Cuvier says Dingo & common dog wont breed, though often ♣ couple (they will in Australia) & Zoolog Garden of London good
X ||See to authority
H. case of dog pairing with chained wolf
X p165 crosses of Domestic Cock with other Birds & Finches
p172 (a) Case of some crossed by boar (perhaps previous impregnation) had one tame pig & other wild &c &c
X p168 variation which comes on with age appear at corresponding age ●
X p.169 & 172 BB – Mongrels have the character of (but many exceptions) ⟨*rest* ◊⟩ hybrids have character ⟨*rest* ◊⟩
⟨*over*⟩
It is an old argument, but never to be forgotten, that we must look with our gained experience ♣ on the history of the world, as an ♣ animal of years duration must on the variation of domestic animals he wd never suspect such a thing.

12

p184 (a) Ammon reckons on colours of of horses being certainly true if only two generations are known true
(b) white hens, peacocks, mice all come true
(D) contrasts fruit-trees – gives Van Mons case of 35 years selection producing all good fruit – (natural mongrelising he does not notice) & trees bore fruit sooner
p185 (a) High-heel boots, have affected form of childrens feet in Germany! Thaer
p186 (b) Shepherd-dog instinctively ♣ rounds sheep
X (a) mongrel sheep-dog & pointer for several generations pointed at Birds.
(e) varieties sometimes cross whilst wild; white hares in Cornwall &c
♦ Have parasitic plant genera wide range as Waterhouse says parasitic insect do have
No
p.54.

SB □ℜ ⟨*4 sheets, numbered 1, 11, 13, 14*⟩
56 on mixing of Salt & FW Fish in Baltic
58 do. & of shells & Crust in Caspian
69 changes of colour & quality of fruit from soil.
77 Doubling of flowers, discussion on.
83 changes of flowers on mountains, intense colour, plant less size, but larger flowers
85 cases of plants changing by culture. Lobelia & Ziziphora (Refer to in note) Q
89 Summary on changes of Fur of animals under changed climate
107. most important case of variation of Fish
96. Hawk in Berlin went back to earlier plumage
11
170 X 8 generations absorb another race, in which one blood is 99.62 of whole
– strong case of sheep taking after Ram in reciprocal cross X
– on crosses not intermediate: on horns going from father X
177 Description of Hybrids wolf & dog
179 Particulars on Hybrid Canaries & Goldfinch
I have used all this Book for Hybrids
13
187. feral dogs soon reclaimed (Schomburgk)
188 –Bechstein says Zeisig more readily pairs (Ch. 6.) with ♣ green than with yellow Canary Birds
189 Brehm's subspecies not merely geographical Races
190. White Hares of Cornwall.– (must allude to Bronns Gesichte in Preface; if soon Gartner, Kolreuter, Decandolle Huzard.– Hooker's works – Lyells Geology. Isodore G. St. Hilaire
195 References to G.St. Hilaires doctrine of external cause causing change
210 Horses swim 7 German miles
216. on accidental migration of Lemmings, insects &c
223 References to falls of inorganic bodies
224. Lost animals – Turtles – & Birds on continents
225 Reference to Hawk Case Fontainbleau – R. Brown on Gulf seeds germinating
229 case of Head of Bos m. washed on shore of Greenland shows course of iceberg, with respect to plant common to White Mnt. & Greenland.–
234 Excellent accounts of falls of seeds, with references
236 Fish & Crab Rain
247 Remarkable that N. Holland more plant common to Europe than S. Africa – explained by me
14
252 on Relation of Red Sea to Mediterranean – Wiegmann Arch/– on distrib. of insects & Lacordaire.–
253 Alpine climate not very like polar.
254 Snow region in Alps 12 plants, many more in Melville Isd
–Table of heights & Latitudes to show correspondence
272 Duration of Seeds vitality of
284 number of seeds – kind of animals which have most – number of eggs in Crab-Fishes
286 number of mice one pair can produce in year
– increase of cattle in America with dates
293 Destruction of forests by insects
297 – on insects destroying crops–
299 Rein-deer killed by insects
300 Mice destroying trees
302 increase of mice, followed by increase of weasels
505 causes of extinction, yet not real for they do not apply to rarity

v *9–12?, 14–18m, 1–26w* Read all on this problem **vi** *4m, 23–26w* Read **vii** *20–24w* Read **viii** *1–30m, 18–23w* Read **xi** *2–12m/w* Read & marked **28** *wt* Tobacco plants in 5 years wd cover all Germany *29–31m/30w* (a) **54** *8–10m, 13m/u "die Pflanzen", 19u "lange", ⇑2–1m/w* (a) *wb* Trees not killed by cases of shells of seawater – did annual seeds spring up again? ask Mr Higgins **55** *7–17w* sea & freshwater shells mixed together **56** *14–20w* on Fish inhabiting salt & F. Water *16–17u↔, 32u↔/30–35w* Cyprinus in F. & salt water **58** *21–40m, 23–28w* Caspian Fauna genera of salt & fresh fish & Crust & Shells *43–44m* **59** *28–40m♦, 30–41w* changes in vegetation – spread of a grass when forests cut down **65** *12–17w* (Must skim previous Part May 12 – 45 Begun **69** *23–31m/w* dark red Rosa became streaked with white by earth colouring *29–31m, 32m, 35–38m, 35u "1837", 44w* Is this good authority? *wb* X other cases of flowers changing colour in diff: soils. xx case of grape strongly manured cow-dung, alum, horse-chips &c changing from small ♣ yellow-green, with flatened grapes into large watery dark blue grapes **70** *wt* A Different manures affect greatly melons in quality *2–10m/3u "Gewürz|zartheit"/w* A **72** *wt* sugar-cane & ♣ Pineapple seedless, from antithesis of sap & pulpy fruit *1–4m, 1u "Ananas", 2u "verwildert|kleine", 29m* **74** *1–27w* instances of different parts, with

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parenchyme enlarged by culture, as in Cabbages & Plums *16–27m, 28–29u↔, 29–30m, 35–39m/w* These trees did not produce fruit, from luxuriousness of vegetation **75** *1–2u↔, 8–13m/w* cutting trees makes them fruit. **76** *19a/u/wτ, 16–28m/w* on change of sex in dioeceous plants **77** *1–21m/4–17w* on doubling of flowers *27–30m✎, 27–35w* old & new seeds differ in producing double flowers **78** *11–26w* did seeds produce female plants – large fruits is opposed by antithesis to seeds **79** *35u "dasselbe Individuum"/35–37w* loose or gain hairyness **81** *20–22m/19–25w* European biennials changed into annual in Crete **82** *11–17m/11u♠/15u "Weiss"/16u "Hibiscus | weisse"/17u "Roth"/w* Lilacs when put in hot-house changed from white to red *21u "Wimmer", 28–38m, 44–45m/w* (I have not thought worth quoting) ⇑*2w/wb* all facts on next page I believe taken from this *wb* R. Brown believes in great alterations in flowers on mountains **83** *4–7m/w* dwarf from growing on high mountain *9–13w* leaves change a little *20–26w* Hairyness increases on heights & in wet places *27–29w* other time lose them *30–35m/w* Colours of flower – stem darker *37–45w* flower larger sometimes though petal smaller even twice *wb* x from above changes many varieties have been considered as other species **84** *19u "Nessel | dioica"/16–22m/w* Link says southward Urtica dioica changes into U. caudata *41m* **85** *wt* (a) Lobelia lutea from England flowered for 4 years in Pawlowsk, did not seed, was divided into 3 plants, & they lost their lance-formed teethed leaves & has broad, egg-shaped leaves, with different flower; became the L. bellidifolia *1–7m/*Q *9a/u♠/10a/u♠/7–12m/w* Both. C.G.H. flowers diff. colour diff time of flowering *30–33m/w* Form, direction & connect less affected; great influence on instincts *39–40m* **86** *22u "kleiner | unfruchtbarer"/23–24m!?/24u "die Grad"/17–28w* Animals on limits of proper climate less fruitful!? and less size. *31–37w* Peron's case of shells altering in size in Australia *37–38m/wb* On increase & decrease in size in Helix's on Alps **89** *wt* European goats in high mountains have some fur *7–14m/10–16w* on change in fur in European animals in Himalayas *midpage* Q *40–41m, 45–46m, wb* this Page summary of facts on fur **90** *4u♠/4–6m/4–9w* looses hair when old *6–10m/9–19w* Pigs with different hair in different parts of S. America *16–20m, 19u "weit | Winterhaar", 26–30m/w* No cause for Angora wool *42m* **91** *15u "Gloger"/14–21m/w* almost all beasts undergo some change in winter in colour *19u "tropischen Gegenden", 20u "höher | sind", 21u "helle | grauweise", 22u "Polen"* **93** *8m, 14–16m, 28–33m, 28w* (a) *38u/wbτ* **94** *3–16m/2–9w* animals at pole become white *23–36m/21–32w* birds do all or in patches **95** *1–5w* Men, horses & Birds white with age. *12u "Eichhörnchen"/9–15m/w* some darker by age & by hot climate, *20–27m/w* other colours change in birds by climate *28m, 29–32m/w* head, neck & eyes change colour *43m/43–44w* Gloger – much praised by him **96** *wt* a Hawk went back in Berlin to an earlier plumage *3–6m/5u "zurückschlagen", 9w* (a) *12u♠/15u♠/12–15w* Galapagos Finches Black *17a/u/wτ* (b) *22–23m/w* (c) *27–30m/28–29w* d *32–33u "Osw. Heer", 36–39w* e Quoted **97** *1–18w/wt* ! Most of these observations are vitiated by doubt of what are species – reason against my going into details *13u "Viele dieses", 14–15u "Systemen | worden", 31–33w* Quoted *40u♠* **98** *7u♠,* ⇑*7m* **99** *11–13m/w* a *29–31m/w* (b) *38–41m/w* (c) *42–43??* **100** *12–16m/16u "Schafe"/13w* (a) *38m/w* Gloger *wb* on different singing in same Birds **101** *14u "Freyer"/10–14m/w* In Ray has written much on Butterflies no authority *15–19m/16–17w* (a) *22–26m/w* effects of good food chiefly through young *31–36m/w* affects flesh more than bones **102** *15–16w* (a) *26m* **105** *14–26m/w* on change in Merinos in France & Holland **106** *26wτ* **107** *wt* This case so important as to be quoted *10–12m/13–14u "grosse | entstanden"/11w* (a) *wb* (a) the intermediate form between ♣ these two supposed species, found in a ditch where one species had been turned in. Yarrell. vol I alludes to these two fishes & gives summary of their differences **109** *2–4m/2–6w* made from many individuals *13–17m/w* birds black from seeds *27u "Bombyx | viel", 28u "B. | Blättern", 35m/u "Waldhafen | Hirsche"/36u "Gebirge", 48m/wb* x wood-hares larger than field-hares Mem: Fox of Highland **110** *20–23m/20–22u "Schwung | Truthühnern"/23w* Musk duck *25–29m/29u "Gloger"/33u "S.109"/30–33w* toes & membrane (a) *wb* p109 Alludes to different figures of Mountain & plain cattle **111** *5w* (a) *19–20u "bis | Werfen"/18–25m/w* tame cows more milk than wild: organs adapt themselves *34–36m/w* (b) *40m/w* Greyhounds in Mexico **112** *5u "Scheue"/4–8w* domestic animals loose cunning **113** *4–14m/w* case of dog walking on hind legs *18–24w* Beavers difference when single & in company *26m/w* (a) *28–30m/w*♦ Ducks **115** *23–33w* original temper &c of wild dogs different **116** *14u "Menetries", 41m/u "Isis 1832"/39w* ?read? **117** *wt* So Rabbit in Falklands, Horse in La Plata Latent instincts.– *1–12→, 13–16m/w* Young wild Cuba dogs reared are tame !! *25–26m, 33–34m/u "Aber | mögen"/w* !! No *40–41m/u "Hopkirk | Isis 1819"* **118** *3–6m/w*♦ understand? *9–10m/9–15w* sports on single branches hereditary (a) *21–23m/w* (a)(a) **119** *2–8m/5w* (a) *11–17m/13–14u "dass | vorkomme"/12–17w* (b) not understand *20u "1790"/21u*♠*/20–23w* ? Dahlia history of *30–33w* flowers of two colours on 1 plant *33–34u "D. | trug", 34–38m/w* sported extraordinarily *39m* **120** *wt* First affected single parts, then all parts of plants but in less degree *1–2m, 4–6m/4u "6′–7′"/5u "3′–4′"/3–5w* by selection *7–12w* period of flowering earlier *42–44m, wb* (on Cabbage-varieties) **121** *22–32m, 22–25w* weeping Ash hereditary *29w* not hereditary *31–34w* Weeping Peach hereditary Q✍, *38m/u "Versuch | Monographie"/w* Potatoes *41–44m*✍ **122** *11–19m/w* cases of leaves soldered up like Nepenthes **123** *2–3m/wτ, 5–9m/6w* (a) *10–11u "eines | Weiss", 13–14m/u "rothgefärbten | Jahre", 14w* Geranium Dianth *20w* (b) *41m/w* (a) *42–43m/w* (b) *45m/u "Ann. | XX"/w* Oranges **124** *21–22u↔/w* (a) *23–26m/24w* (b) *wb* (b) very curious, seedling became smooth instead of hairy; but it was found in ensuing summer, that it was hairy in spring & smooth later in summer **127** *20–22m/w* (a) *23–24m, 45–46m/wb* Dog cases **128** *34–35m, 39m (Blumenbach), wb* skull of tufted Holland-Hen monstrous bladder of bone (yet sexual) **129** *15–16m/16u "mehrer | Knochen", 42–44m* **130** *1–3m/2w* (a) *12m/13u "Schlegel"/w* (b) *14–23m/w* some moveable part in tortoise variable *25–30m/w* These genera of Bell only monsters *33–36m/w* (D) *37–38m, 41m/w* (D) **131** ⇑*12–10m/w* (a) **132** *wt* Now see whether number varies in different species *3–5m, 6–12m/8w* (a) *16u "Lambert"/16–19w* skin with spines *21–22m/u↔, 31–33m/w* (b) *35–37m/*Q✍*/w* (D) *39m, 42m/w* (D) **133** *22w* (a) **135** *15–16w* not cross! *17u "Pelargonium"/18u↔/17–18!!, 18–21m/w* Herbert *26–30m/27w* (a) *36–37m/w* (B) **136** *9u*♠*, 11u "deren | fruchtbar", 24–39m, 33–35u±/w* (a) *42–43u "den | Petropolitanae"/w* (a) ⇑*2–1m/u/wb* Novi Commentarii? **137** *44–46m/?* **138** *1–12w* Herschel experiments appear valueless to me *34m/w* What result **140** *31u "Dr Gärtner", 43–46m* **141** *1u "oft | leicht", 10–13m, 10–14m, 13–14m, 13–15u "keineswegs | A"/w* seldom so many seed as in pure cross (a)(b) *21–25m/w* all changes take place more slowly *26–29u↔, 31u "600 | 30"* **144** *5w* (a) *17–18u "Alle | praecox", 25–26w* Monocotyledon *26–34m, 36m, 38m, 39–40m, 43–46m/w* Amaryllis **145** *1–10m/wt/1–10w* all sterile except 2 cases, as are pure Amaryllis on account of tending to bulbs; How does Herbert find this? *40–45m/w* Look to Passiflora Rosa **146** *16–35m/28w* (a) *37–42m/w* 1824 to 34 8£. Bailliere **147** *1–2m, 4–6m/w* (b) *10–11m, 38–42m/w* (b)(b) ⇑*5–1m/w/wb* tendency to monstrosity; is not this like large fruit of Pears **148** *wt* Most often sterile on male side *1u "am häufigsten", 2m, 10–17m/w* greater ♣ vegetation power of hybrids **152** *7–12m/9w* (a) *38m/w* B *47m* **153** *4u "Henschel", 5–7m, 44u "Nie | zeigten", wb* Hybrids never intermediate as in Koelreuters !! V p. 138 **154** *9u "Gärtner", 22–25m,* 27Q, *29–30u "einzelne | Vater"/22–31w* Fruit never affected by a cross in the plant itself *36–37m/u "kommt | überein", 41–42m, 43m*♦*, wb* effects of crossing varieties exceedingly uncertain **155** *1–20w* History of variation of mongrel maize, not very important *30–33m/31w* (a) *38–41m/39w* (B) *43–44m, 45m/w* Gartner **156** *1–5m/2w* (a) *7–9m/8w* (B) *26u "genannten", 27–30m, 27–28u "ganzen | Form", 30u "Saamenstaub | Früchte", 35–37m, 36–40m, 36u, wb* Grt fertility of Hybrid Passiflora than with own pollen **157** *29–31w* wild Hybrids *40m/w* Authority for all **158** *wt/1–10w* How curious the number of natural Hybrids in Gentianella & Verbascum & Conicus I doubt whether some of them are not varieties & Zygaena in insects *11–12u "dass | verband", 13–19m, 18–21m, 18u "hat | Mutter", 18u "Charaktere", 19u "Kelch | ausgenommen", 19–27m/w* some character like one parent & some like other *22–23u "in | den", 31–32u "scheint | unfruchtbar", 36u "Fruktifikation | Vaters", 37u "es | Saamen"* **159** *13–16u "Habitus | spuria", 16u "Fähigkeit | Saamen" 28u "Die | Charakter", 37u/wτ, 39–40u/wτ* **160** *wt/1u "auszubilden"/1–4w* parents must live together *5–8w*♦ L. marshy fields *6u*♠*, 11–12u "bald | Mittel"/22u "häufig | ähnlicher"/9–25w* are not these varieties? they are fertile *29[...* **161** *1–3m, 1u*♠ **162** *14wτ, 17–42w* curious case of change,– but possibly a hybrid – (not like the Asphodelus case. of Linn Soc) for it has a seedling, *14–15u "angebliche Verwandlung", 21u "blühete | zinnoberroth", 22u "purpurrothen", 25–26u "blüheten | Streifen", 30u "aber | als", 39u "Schneevogt | zwar", 44m* **163** *8–14m* **164** *3–6m/4w* (a), *9–11m, 12–13m/w* (d) *16–17m/w* (e) *19–20m/w* (f) *22–23w* She-wolf or dog, *22–23u, 25m/w* (h) *31–32*Q*/33–34w* p 132 *35–38m/27–37w* are these species? *40m*♦*, 42m* **165** *14–15m/w* Bechstein!!! *17m/w* * minute account *18m/w* minute account! *25m, 37m, 45m* **166** *5–6*Q*/6m, 10w* 1 *12w* 2

16w 6, *19w* 9 **168** *10u↔/wt* Peculiarity which comes on with age, are hereditary at same age *wt/1–9w* self-acquired peculiarities scarcely ever transmitted !!, *8u "allen | zwischen", 13–16m/w* sex determined by strength & age of parent *27–30w* on sex of offspring **169** *14u "Varietäten-Kreutzung"/w* intermediate *16w* (B) *18–20w* varying when parents vary *21–25u±* **170** *wt/fig.w* 8 generations transform one race to another (so Kolreuter says in Species?) Q✍ *8–9u↔, 10–11Q✍, 15–19m/20u♠/13–20w* strong case of sheep taking after rams ie sex. *23–33w* cases of odd hereditariness not intermediate in claws & horns *28–30u↔, 32u "gehörnte Kuh", 32u "ohne Hörner", 33u "stall | Hörner"* **171** *2–5u±, 14–15m, 27–29u "Ein | Nachkommen", 31–32m, 32u "Godine", 32u "vorzugsweise | gleichen", 44–45m, 45wτ, wb* Probably good, as he trusts to numbers (Read) **172** *1–2u↔, 4–10m/6w* (a) *11–12w* Royston & Carrion Crows *12–13u↔, 15u "aber | Fällen", 16u/wτ, 14–20w* Q considers them as varieties Newman must be consulted. *24w* B *24–26u↔/27w* (e) *34–35u±, 43m, 44m* **173** *12w* Fish *14u "beruhet | von", 20w* female **174** *8–9u♠, 13–14u "viele | Junge", 28–30u±, 33u/wτ, 39u "auch | legen", 42u "keine Eyer"* **175** *18u/wτ, 24u/wτ, 32u "gleichen | alle", 33–35m/34u "ein | ähnlicher", 34–35u "ein | ähnlicher", 35u "zuletzt | zwischen"/33–39w* is this not effect of which bird is father or mother, *43u "sind fruchtbar"* **176** *10u "sechs | Mutter"/10–12w* Lumbar vertebrae *17u "doch | beiderlei", 29–31u±* **177** *14–16m, 27–40m/28–45w* 3 Hybrid wolf-dogs from one litter differed in form <u>& instincts</u> : female bore young to a hound *28u "war menschenscher", 30u "Kopf", 39u "andern | Kreutzung"* **178** *1–5m/w* other cases of dissimilar hybrids *5u "Charakter", 5u "sanfter", 9u "nur | zeigen", 19–40w* Minute account of hybrid of Cat & Martin not infrequent – seen in copulation!! **179** *10–32m/18–20w* A, *38–39u "sich | ausgemacht"/34–40w* Crosses of Canaries & Finches breed with one parent ⇑*2m/w* See to this ⇑*1m/w* About breeding of Musk & common Duck *wb* <u>A</u> history of hybrid of canary & goldfinch hybrids *wb* Says the Hybrids of Musk & Common Duck can breed. **181** *5–10m/w* Hereditariness of extra fingers *10–34w* How wonderful! the cell shd have such power Often good instance of peculiarity appearing in grandchild.– **182** *1–28w* Much of my sort of argument about return to parent-forms– *30–34m, 35–38w* Crow cases *42u♠/40–43m/w* Koelreuters case **183** *wt* (my remark) *2–5m/w* reasons in circle *23–27m♦/23w♦* remark, *wb* cases, as sixfingered or case where only one parent has peculiarity ought to make one cautious about saying there is so strong a tendency to return to parent form. **184** *5–6u "216 | Pferden"/8u "nur | Junge"/15u/5–14w* only 11 out of 216 pairs produced foals of different colours (b) *23w* (D) *24–25u "dass | scheine"/!* **185** *13–24w* account of what selection & crossing have done like my skeleton *30–33m/32w* (a), *35–41m/35–45w* mutilation hard to inherit yet believes in tailless dogs from this cause!! *47m, 22–23u "gehörnten | zurückschlägt"/wb* which did not go back: no wild permanent vars go back **186** *12–15m/13w* (b) *17–18m/w* (a) *21–23m/w* (e) *24u "S.190", 26–30m/w* race of one horned wild stags *37u "Gmelins", wb* (a) some species resisted culture for 2–3 years – but with proper culture returned to parent-form – **187** *5m/wt/1–5w* <u>perhaps often cross now with</u> dogs if inhabitant & so with horses. *10–11u "aber | Rassen", 15u "Schomburgk"/16u "nach | Ohren"/13–15m/12–17w* wild dogs in 1st generation tame *29–33m/w* seems to think new species are formed. **188** *6u "Brehm's", 30–32m, 33–35m, 33–34u "nach | paart", 35u♦, 37–39m/38–39w* Brehm subspecies **189** *1–28w/wt* <u>These</u> sub-species are not exclusively geographical vars or species *5–18m/16u♠/18u "aus | diese"/7–15w* case where Brehm splits old species into 2 *19u "tinnunculus | einen", 19–30w* 4 sub-species (See Gould) Bronn seems to consider them varieties *30u "Sie | Klima", 34u "meisten | Jäger", 35u/wτ, 38u "nach | und", 39–42m/39u♠/40–41u "Bär | Striche"* **190** *3u "nach | Couche"/wt* Must see to this. *1–2m/w* Hares differ *3–6m/w* White Hare *33–37m/35w* a *39m, 41m, wb* Slow geological change important because domestication shows slowness **191** *wb* I begin to suspect too slow, except in sudden immigrants x– In this case we have fewness of number, sudden change, (in organism & external conditions), but on other hand not many to select from.– especially changing island.– **192** *1–33w* seems to think that some species may be varieties **193** *11–12u "viele | Spezies"/w* tortoise-genus, *41m* **195** *23–26m, 24–25u↔* **202** *19–21m, 32–35m/w* double creations probable *wb* remarks that 2 must have been created of bisexual animals – [Multiple Creations must not be treated dogmatically] **203** *14m/u "Candolle Sohn", 15–21m/w* believes whole surface covered with new species **204** *26–29m* **210** *wt* plants distributed along rivers *1–3m, 32u "7 | Meilen"/30–35m/w*

Horses swim **211** *33wτ, 34–35u↔/w* whether same one does not know **216** *1–29w* in certain periods animals congregate & migrate in no fixed direction or fixed time hard to explain *31–34m/33u "O.|W.", 35–36m/w* (a) *wb* (a) In these cases Congregating always announces intention to migrate, though when in years, when number not great, there is no tendency to congregate **222** *29–39w* congregate & migrate, when food &c fails in own country **223** *17–18m* **224** *16–18w* Lost Turtles *26–31w* Lost birds on continents **225** *3–4m, 30–32m, 40m, 41m* **226** *6–15m/w* Eggs of mollusca may be attached ♣ fuci & wood **227** *wt* x said that maize was floated to Japan *1–2m/w* x **229** *wt* (a) quadrupeds carried on ice may transport seeds– *3–13m, 6–10w* (a) White Bears. Wolves. *15–21m/w* Bone washed to Greenland on ice so cd seeds *38u/wτ* **230** *11–13m, 28–40w* If Storm Petrel so often blown inland, other birds might be blown to sea *wb* The real cause of surprise in birds, insects & light seeds, that not more distributed. **231** *19–24m/23u "leichter|schliessen"/22w* (a) *wb* distance to wh. pollen is carried bears on seed transportation **232** *2–20m/2u "Lupinen" 4–10w* cases of pollen-showers *18u "vor|Feldarbeiter"/16–25w* This bears on seeds. Meteoric paper of Coniferae.– **233** *zb* **234** *3–5w* rain of seeds *9–11m/11u "die|waren", 14–18m/18u "zum|Art"/14–20w* corn raised in Africa fell in Spain *15u/wτ, 21m/u "Schleffen", 41m/w* Read *42m/u "und|217", 43m* **235** *32m* **236** *16–21w* Crab & Fish Rain **237** *7–10w* Fish Rain *14u "zwei|lebend", 27u "Fischen|Fröschen", 28u "und|lebend", 29u "lebend"* **238** *9–11m, 12–15w* Frog Rain **241** *15–19w* Fish eggs perhaps stick to Birds *20u "50|Genera", 21u "mit|Saamen", 26–31m/w* amount of birds with seeds killed by others **245** *27–28m, 29m, 37m, 41m, 42m*♦ **246** *14–15u↔/5–20w* ?? shells in America & Pacific *25–28m/26–27u "ziemlich|besitzen", 37m, 39–40m* **247** *8u* ♠, *9–11w* wider genera *13u*♠, *18–19u*↔, *26u "385|von", 31u "nur|Arten", 33–35m, 33u "70|590", 40–41m* **248** *6–7m, 9–11m, 19–20u "unter|Europa", 27u "Ursus|Fischotter", 28–32m/29u "beiden Wiesel"/29–30w* two weasels *37m, 43m* **249** *23u "reicher|ist"/24u "je|seine"/23–28w* Hooker says no no! N. Zealand **251** *24m/u "22|Reiche", 41m* **252** *5–6m, 7–8m, 17u "Fischen"/18u "Korallen gemein"/19u "500"/20u "32"/17–21m/15–27w* Red Sea & Mediterranean Phillipines make shells more in common *36m* **253** *11–16w* climate of mountain tops differ much from Polar Regions **254** *17w* in 48° *wb* Snow regions of Alps only 12 phanerogam whereas Melville Islds & Spitzbergen much richer **255** *5w*♦ exclusively confined not peculiar ↕*w* Heer on insects of Alps.– ♦ The number of peculiar insects appear very small at the great heights – most peculiar species at bottom **256** *24–27m/25w* (a) *wb* (a) Larger the continent, larger the animals – Australia & S America contrasted with Java & Borneo !!! **272** *wt* Duration of seeds **273** *38–42m/w* old seeds reviving **278** *25u "Spallanzani's Versuchen"/25–31w* no fish eggs keep more than 2 months dry ⇑*2m*, ⇑*1m, wb* account of a disconnected pool annually dry & annually repeopled with Fish **284** *16u↔/14–18m/w* Less propagating powers by ostriches !! wolves !! x *19–21w* because not destroyed *29u "ihres hundert"/28–34w* number of seeds from a 1000 year old trees *wb* x number of eggs compensate viability chance♦ of destruction in full grown state & youthful state & egg state **285** *18–19m, 18u*♠, *19u*♠, *29u*♠, *30u*♠, *31u*♠, *32u*♠, *33u*♠, *42u "Polygamic|Hühner", wb* How evident protection of womb does in place of many eggs (yet rats) **286** *11u "Feldmaus", 12u "5|10", 15–21m, 19m, 34u "27 Jahre", 35u "4000–8000", 36u "35.444"/wτ, 37u "65.|Besitznahme", wb* One is always astonished at geometrical increases **287** *2a "Rudel"* flocks *1–2m, 40–42m/u "Lyell's Principles of Geology"* **288** *38–41w* impregnation *42–45m, 42u*♠, *43u*♠ **293** *7u*♠, *8–9w* destruction of forests *11–18m, 22u/wτ* **294** *5–10w* Forests destroyed *wb* To see what injury horses do & sheep to young plants I have often wondered how anything grows up **296** *11m* **297** *1–3m, 17u "von|Engl.", 18u "land einwärts", 18u "200", 38u*♠, *39m, 39u "den|unmöglich", 43–45m* **299** *29–32m, 29u "Rennthiere", 31a "Drittel"/u "so|stirbt"* **300** *32–36m, 33u "Feld|Maus", 35u "bedeutende junge"* **301** *15–19m/w* Epidermis in Caterpillars **302** *6m, 42u* **303** *wt* Weasels increased *1u "Wiesel", 2u "Mäuse"* **505** *25–28m/25w* (a) *wb* (a) all these great causes given of extinction, yet none of these apply to rarity & therefore (with exceptions) to extinction

BRONN, Heinrich Georg *Morphologische Studien über die Gestaltungs-Gesetze der Naturkörper* Leipzig und Heidelberg; 1858 [CUL, I]

409 *10–11wτ, 13–16m, 19w* no *19u "bisher gänzlich entgangen"*

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SB ♦ p78 Oken Grant 1835 use my copy d'Alton, Unger 1852; p.80 ?
79 *36m* **80** *34–37m, 34wτ*

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⟨w✍; not CD; give melting-temperatures of various metals; u mainly names of metals]
iv *34–37w, 34u* **v** *26–28w, 26u* **xxiv** *27–30w, 27u* **xxvi** *19–26w, 19u* **25** *8u, 9u, 13u, 30u* **26** *4u* **98** *26–31w, 29u, 29a* **102** *15w* **110** *15w* **111** *5–10w, 8u* **114** *31w, 31u, 32–38w, 37u* **116** *2–3u, 2–5w* **117** *3–9w, 3u* **122** *38–41w, 38u* **128** *15–16w, 15u, 23–24w*

BROUGHAM, Henry, Lord *Dissertations on subjects of science connected with natural theology* 2 vols.; London; C. Knight & Co.; 1839 [CUL]
ad, beh, br, ch, cs, fo, h, hl, no, oo, phy, sh, sl, t, ti, tm, y

vol. 1 NB1 Is there anything odd in the nidification of Penguin Duck.– M. Miller says so – we want cases of this
N.B. some birds feed their young with different food from what they eat themselves – this paves the way for explaining habits of solitary wasp, ♣ in this book considered – good plan thus to take one example.–
Ask Fox to obtain information about Tumbler Pidgeons. cross them.–
NB2 1 all to 54; 70; 77; 79; 84; 91; 102; 107; 108; 116; 119; 123; 121, 122 to 134 to 138 to to 143 to 155 → 161, 167; 179; 188; 196; 203, 204 → 208; 216– Journal =; 267; 244; 332
SB ❑β
Q 17 Case of solitary wasp feeding young with spiders & caterpillars. good better than Birds feeding different food
Q 28 Brougham definition of instinct [Insects life too short for much experience or gained habit]. Though habit may do something for higher animals not needed for most complex instincts
Q 30 Instinct – (47 do &, 52) 70, 203
Q 77 Mathematical work to show how perfect the Bees cell is 79 contrast with man making a plan – p. 244.
Q 117 good instinct – chicken pecking circle inside shell cannot be an habitual action; 208 young alligator snapping/ Chicken seeing, walking, pecking at early youth reflex continued
Q 124 Intelligence
Q 196 On Abstraction in animals
Q 219 On the form of Bee Cells
All Q

7 *11–17m* **8** *wt* therefore growth an instinct!! *5–7m* **9** *wt* or rather apparently voluntary – analogy from ourselves would lead one to consider voluntary *2–3m* **11** *11–15m* **15** ⥣*11–1m* **17** *wt* In whatever way I create my instincts & habits, or changes in brain's structure, the instincts must have been formed step by step on account of effects of crossing *19–25m, wb* excessively hard to account by habit – **24** *4–12m, 5u "in | number"* **28** *1–7m/w/wt* this hardly applies to S. American horse cantering *wb* Yes the gratification of an habitual action.– or even without it, but disagreeableness of prevented – One sees this in dogs – **29** *16–21m/17–23w* but why does she like half killing them **30** *wt* Spallanzani & the Bat is good to exemplify what I mean *1–2m, 5u "instant"/5–7w* false in Bees *7–12w* Here is common confusion of means **32** *12u "cylindrical cells"/?* **33** *15–25m* **42** *19–25m* **43** *1–12m* **47** *13–23m/w* no – retriever action does not apply to it *22–25m/?* **48** *wt* Yet S American Horse cantering ♣ would be called instinctive. ? will not my definition, of that which, according to our own consciousness, wont○ be done with deliberation. *1–6m* **51** *14–18m/*Q **52** *10–18m, 21–25m, wb* is it not that most instincts happen to have some end in view? **70** ⥣*5–1m, wb* applicable to habit **77** *wt* very wonderful – it is as wonderful in the mind as certain adaptations in the body – the eye for instance, if my theory explains one it may explain other. *2–17m* **79** *5–25m, wb* some wax-working woman worked under a cloth, & so made likeness by touch **84** *21–25m, wb* take the case of chicken being born with powers of sight, which man only acquires slowly – we can see no reason why man shd not be born so – this might be worked into good case **85** *1–19m, wb* also lamb walking & baby not – the movements of lamb in womb could never teach it to balance body – an act which must be most difficult **91** *12–14m* **102** *10–25m* **107** *12–22m* **108** *18–25m, wb* Casarita boring through mud walls – swallows building on wet places – **116** *1–13m* **117** *15–24m/21–22u "and | end"/23–*

25m/16–21w hard to account by my theory **121** *12–18m, wb* Blackwall has seen same thing **122** *4–25w* the blindest instinct, birds building nests, is somewhat adapted to circumstances *22–24m, wb* I am surprised at this being called intelligence **123** *8–17m/9–10w* See Rengger **124** *3–6m/4–5w* Yes Rengger *wb*♦ **125** *3–7m, 8–12m* **134** *22–25m* **137** *14–25m/23w/wb* Blackwall – No **139** *13–25m* **140** *1–11m* **143** *wt* x it is a faculty *5u "examined|Instinct"/4–7m/w* very false x *19–21m* **145** *19–25m* **146** *1–7m* **147** *22–25m* **155** *12–14m* **161** *17–25m* **167** *11–25m* **179** *6–10m, 14–23m, wb* always compare savages **188** *23–25m* **189** *2–5m, 13–18m/15u "which|kindred", wb* Have animals taste? dogs like looking out of window **196** *8–19m/13–14w* dont understand **197** *3–7m, 3–25"...", 5u "Judgment|Reasoning", 9–25m* **199** *wt* Rengger shows that monkeys domineer over dogs, like men over other animals **203** *15–18m* **204** *6–11m* **208** *14–17m* **216** *1–6m* **222** *18–21m* **225** *2–4m* **229** *20–25m* **231** *13–15m* **233** *14–22m* **235** *17u "trihedral"* **241** *11–15m* **244** *7–19m/11–12u±/11w✍/12–13w✍¢¢, wb* astonishing on my Th. that infinite attempts should have reached that perfection which mathematics requires – this instinct has same relation to geometry, which the eye has to optics **245** *8–11m/8–9u "not|rhombus"* **264** *18–20m* **265** *1–2m/1u "but|three"* **267** *11–18m* **270** *10–16m* **278** *9–14m* **279** *10–15m* **332** *9–13m/w* the instincts of young Cuckoo are like those of larva *wb* The instincts of the young of anims are probably remnants of instincts of ancient larva-state

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vol. 2 NF S✍
NB 52; 56; 65; 66; 84; 108; 183
SB ❑β
84 Rattle of Rattle-snake; if given to paralize prey by fear useful; not given to warn animals – go on to say Trigonocephalus to show case.– Ch. 9
108 Vis Medicatrix

52 *11–18m* **56** *wt* Man's mammae !! abortive wings, under ♣ united wing-cases !! *1–8m, 13–26m* **65** *13–23m, wb* Preservation of life! **66** *1–15m* **84** *5–10m/w* curious instance of injurious structure **108** *1–25m* **109** *1–13m* **183** *wb/↕w* How many times have shells been changed in Europe since Eocene? Mammals probably greater number. & how many at present & how many during Eocene – We might calculate how many have lived in Europe alone yet only 160 have been found fossil

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vol. 1 ℘

vol. 2 ℘
273 *3–5m* **278** *16–21m, 33–37m, 37"...* **279** *wt* ●, *1–3m/1u "some confidence", 6–8m, 12–14m* **281** *2–4m*
℘

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beh, ds, phy, sx

vol. 1 NB 95 Blushing; 8 Death of males important for Descent
8 *5–12m, 13–15m*
℘
95 *27–28u "nitrite of amyl", 29–33m, 33u "bright|face", 34–36m, 38–39m, 45m* **96** *5–7m/5u "eyes|excited"* **97** *32–39m, 40–44m*
℘

vol. 2 NB for Cicuta p5 or Conium Maculatum ⟨*u*✏⟩
27 ♣ Conia acts on the Motor centres of the Brain but I tried Hyosycamus○
81 Poisons in animals & vegetables
297 ✏ Singing preserved when voice lost
✏ Drosera
v *13m, 15m, 22m, 27m* **vi** *3m* **27** *1–2m/u "firstly|periphery"* **81** *20–23m/22–24w* Frank has shown *39m* **82** *14–18m, 17–20m (G. Harley)* **83** *6–13m, 29–34m* **84** *20m* **297** *16–17m/10–21w* Dr J Crichton Browne *31–33m/32u "to sing"*

vol. 5 NB O/
vii *4m, 8m, 10m, 17m, 19m, 27m, 31m*

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v

vol. 1 part 1 title page *"sixième" corrected to* premier **163b** *13u/w*♠ **164a** *15u*♠, *49–55w* B. not tulipe? **164b** *27u*♠ **165a** *32u*♠ **166a** *29–33m, 29u*♠*/39–41w* var. B. balanoides **166b** *35u/w* var. tintarly○ *56u*♠ **167a** *13–15w* var. lentenabulus **167b** *21u* **168a** *1–2m, 12u*♠ **168b** *1–2?, 31–32m* **169b** *19u*♠ **170a** *6–8m/*

BRUGUIÈRES
8u♠*/6–9w* Probably a Chthanalus○ *23–24m* **170b** *35–38w* Conia? Tetradila serrata? **171a** *18u*♠ **172a** *38u*♠ **305** *2m*

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BRUNTON, Thomas Lauder *On digitalis, with some observations on the urine* London; John Churchill & Sons; 1868 [Down, I] ℘

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BUCH, Leopold von *Description physique des Îles Canaries, suivie d'une indication des principaux volcans du globe* Paris; F.G. Levrault; 1836; trans. C. Boulanger [CUL]
geo, ve

NF Etna albite lava also produce pumice. p. 328
NB ♦ See Burney – for Shortland world Solomon Isld –
155 *25–28m*✍ **156** *14–17m*✍ **159** *17–18m, 21–31m* **162** *9–22m, 11–17m*✍*, 31–35m* **163** *1–4m, 6–13m, 29–35m, 29–31m* **168** *27–33m*✍ **170** *3–6m*✍*, 23–27m* **171** *24–31m*✍ **173** *7–18m, 31–35m*✍ **178** *4–13m*✍ **181** *12–18m*✍ **182** *31–33m*✍ **183** *32–35m/32u "écailles striées"* **184** *1–18m* **185** *1–5m* **190** *15–20m, 30–35m* **191** *12–17m, 18–22m/w* (A) **192** *13–22m*✍ **193** *28–35m*✍ **196** *22–35m*✍ **197** *9–15m/11u*♦✍ **200** *6–16m* **201** *3a "l'autre"* (of W) *1–9m, 1–13m*✍*, 20–22m, 20–23m* **202** *15–19m*✍*, 30–33m* **206** *20–25m/!*✍ **207** *15–16z* **212** *19–23m*✍ **215** *14–17m* **216** *28–35m*✍ **277** *25–28m* **283** *15–19m, 26–29m* **293** *24–35m, 30–35m*✍ **294** *1–10m* **295** *12–28m, 28–35m* **300** *5–21m* **323** *8–17m* **324** *1–4m* **327** *1–2m, 21–22m, 31–33m* **328** *1m* **329** *1–3m, 14–16m* **333** *27–30m, 31–32m* **334** *22–25m, 34–35m* **335** *1–3m, 7–8m* **336** *9–11m* **339** *29–35m (E. de Beaumont)* **340** *1–2m* **342** *13–18m* **343** *33–35m* **346** *1–3m* **349** *31–34m* **350** *1–3m, 5–6z, 11–14m, 15–16m* **351** *7–10m* **354** *24–27m* **355** *3–6m* **356** *20–23m, 22–25m* **358** *35"...*✍ **359** *9..."* **373** *16m* **374** *7–11m* **386** *11a "Island"* Same as Amargura Krusenstern **392** *31–34m*✍ **393** *1–10m*♦ **398** *6–10m* **400** *10–15m* **403** *10c "Ouest"/10w* east **404** *30–34m, 31–35m* **405** *2m/3–7m/2w* Mathews Rock **406** *15–17m, 24–30m* **407** *10–14m, 17w* Lava *32–34m* **409** *5–8m* **411** *29–35m* **412** *1–3m, 13–15m, 21–27m, 29–32m* **413** *20–25m* **415** *11–14m, 27–31m* **416** *5–7m* **418** *17–20m* **419** *1–3m, 30–32m, 34–35m* **422** *1–3m, 1–2m, 17–23m, 33–35m* **423** *32–35m/*Q*/33–35m* **424** *1–2m, 27–29m* **425** *15–18m, 19–21m, 34–35m* **426** *1–2m, 33–35m* **427** *1–3m* **428** *9–14m, 9–14m* **429** *18–22m* **430** *23–27m* **435** *9–11m* **442** *6–11m* **443** *2–8m* **446** *17–21m* **450** *26–31m* **451** *8–13m, 13–17m* **452** *13–20m, 22–25m* **455** *1–12m* **456** *17–24m* **457** *1–6m* **458** *1–7m* **460** *6–13m, 24–29m* **466** *1–25m* **467** *1–26m, 29–31w* Valparaiso Earthquake *30m, 33–35m* **469** *26–33m* **470** *25–34m* **471** *1–4m, 7–11m, 12–35m, 17–20m, 23–25m, 34–35m, wb* XX **472** *5m, 10m/8–25m* **475** *5–10m* **477** *8–13m* **480** *1–8m, 22–27m* **482** *4–9m, 4–8m* **483** *23–31m* **485** *24–32m* **486** *16–20m* **487** *16–19m, 28–29m* **488** *13–16m, 19–20m (Humboldt)* **490** *3–8m* **491** *29–31m* **494** *2–12m* **501** *9–13m, 10–14m* **505** *33–35m* **506** *1–2m, 19–20m* **508** *29–32m, 29–33m* **514** *18–20m* **519** *wb* Does not some one describe Volcanos in S. Shetland besides great crater; New Isld Discovered 1839 by Enderby's Ship; St Pauls or Amsterdam seems quite omitted.; Proby Isld – Isd North of Bonin Ramilla on coast of Ascension – Matthews Rock

BUCH, Leopold von *Travels through Norway and Lapland during the years 1806, 1807 and 1808* London; Henry Colburn; 1813; trans. J. Black [CUL, on B, S Charles Darwin M. Video Nov. 1832]

xvi *19–20m, 24–25m, 28–29m* **xvii** *16–17m, 30–32m* **94** *8–20m* **236** *7–10m* **306** *8–16m, 16u "fruit | maturity", 16–17m, 27–28m, 27u "not | well"* **307** *5–9m, 7u "presented | fruit", 8u "barren"*

BÜCHNER, Ludwig *Aus Natur und Wissenschaft* Leipzig; Theodor Thomas; 1862 [CUL]

BÜCHNER, Ludwig *Conférences sur la théorie darwinienne de la transmutation des espèces* Paris; C. Reinwald; 1869; trans. A. Jacquot [CUL]
ad, beh, fg, h, ig, phy, t

NB 79 good sketch of Häckel's views on first organisms & spont. Generation
114 Helmholtz Eye not perfect
♦Man 123 Schaafhausen – Gorilla 1/2 way between erect & quadruped.–
♦How difficult to young child to stand upright – 124 do – on milk teeth of man
♦132 self-reflection or consciousness
♦135; 137; 144
♦all Q

title page *z* **79** *3–29m* **114** *27–32m* **123** *30–33m* **124** *4–11m* **129** *wt* Büchner L. *wt* 39? **132** *6–11m* **135** *8–18m* **137** *30–32m, wb* higher apes & lower races of man → **138** *2–8m* **141** *6–9m* **144** *30–32m*

BÜCHNER, Ludwig *Die Darwinsche Theorie von der Entstehung und Umwandlung der Lebe-Welt* Leipzig; Theodor Thomas; 1876 [CUL, I] ℘

BÜCHNER, Ludwig *Liebe und Liebes-Leben in der Thierwelt* Berlin; Hofmann & Comp.; 1879 [Down, I]

BÜCHNER, Ludwig *Die Macht der Vererbung* Leipzig; Ernst Günther; 1882 [CUL, I]
℘

BÜCHNER, Ludwig *Man in the past, present & future* London; Asher & Co.; 1872; trans. W.S. Dallas [CUL]
h

NB Nothing need be quoted – Nov 1873; All on Man; 120 very good resume; 142; 156; 266
119 *34–37m/37w* quote **120** *1–4m* **142** *13–25m* **156** *12–17m, 25–30m* **266** *3u "Dr. Lisch", 13–15m, 17–25m*

BÜCHNER, Ludwig *Mind in animals* trans. of 3rd edn by Annie Besant; London; Freethought Publishing Co.; 1880 [Down]
beh

NB 159 on instincts of ants
159 ⇑*2a "are"* ie pratensis *36–42m/→, 20–41w* & yet pratenses taken as pupa **160** *10–13m, 41–42m*

BÜCHNER, Ludwig *Sechs Vorlesungen über die Darwin'sche Theorie der Verwandlung der Arten* Leipzig; Theodor Thomas; 1868 [CUL]
beh, ds, ex, h, ig, oo, t, y

NB ♦
179; 180; 190; 195; 198; 202 good when described; 210; Schaafhausen Book & Rutimeyer Paper
SB ➾ ♦✏
p.179 Man <u>first</u> dentition like Apes.– conclude ♣ feed on Plants 180
✏ All used Man
p 90 on Self-consciousness of Savages
195 on the exactly intermediate manner in which apes <u>walk</u> on Hands – good It might have been asked how cd there have been transition between ● hand & foot?

198 interval will get greater between man & higher apes, from extinction of latter
p202. Rutimeyer apes interval between Catarhine & Platyrhines.–
210 The milder disposition of young apes, perhaps only like mildness of young Carnivora – Bücker

179 *12–15m, 12–14w* ask Huxley *14u "auffallende", 15–18u "indem | hat", 17–20m, 23–26m* **180** *14–21m* **190** *11u/wτ, 15m, 15–25m/w* asks whether savages reflect on relations of things **195** *wt* Gorilla intermediate in upright position – if not existed wd not be kn *1–5m* **198** *wt/3–12m/1–14w* interval between Man & higher apes will get greater, from death of lower races & higher apes. **201** *9–10m* **202** *22–26m* **203** *5–7m* **205** *25–26m* **210** *wb* The milder disposition of all young apes only like young tigers or lions – perhaps does not indicate descent from a mild form.–
℘

BÜCHNER, Ludwig *Sechs Vorlesungen über die Darwin'sche Theorie der Verwandlung der Arten* 2nd edn; Leipzig; Theodor Thomas; 1872 [CUL]

title page *18u* ✎
℘

BÜCHNER, Ludwig *Die Stellung des Menschen in der Natur; 2. Lief "Wer sind wir?"; 3. Lief "Wohin gehen wir?"* Leipzig; 1870 [CUL]

NB Reichenbach ⟨*rest* ◊⟩
170 – (Lamarck before him)
O/
2. Lief ℘

BUCKE, Richard Maurice *Man's moral nature* London; Trübner; 1879 [Down, I]

BUCKLEY, Arabella B. *A short history of natural science* London; John Murray; 1876 [Down]

BUCKTON, George Bowdler *Monograph of the British aphides* 4 vols.; London; The Ray Society; 1876–1883 [Down]
oo, sx

vol. 1 NB p.71; p91 Dimorphism.
p.71 Some Plants not often attacked by aphides – even very poisonous ones
71 *10–13m, 17–23m, 23–26m, 33–39m* **91** *4–17m, 36–37m*
⟨*vol. 2,* ℘*; vol. 4 published after CD's death*⟩

BULLER, Walter Lawry *A history of the birds of New Zealand* London; John Van Voorst; 1873 [CUL]
ad, beh, br, ds, gd, mg, oo, phy, sx, t, y

NB1 p29 Protective Colour of Birds
p56 – affection between paired Birds S S. Q
p66 – Huia Q✍ with Beaks different in 2 sexes & aid each other SS
NB2 p74, 76, 78 migratory Birds to N. Zealand
81, 84 spreading of a species
93 – Rats destroying Birds
Nothing for Descent
NB3 167 Birds with good wings, but incapable of flight
219 male colours on one side fainter & the Bird feeds laterally SS
224 Courting of Pied Oyster Catcher, not important
278 – Gulls catching Moths
SA ⟨*pp. 2–3*⟩ ❑β
p. 1; 15; 19; 111; 117; 121; 137; 163; 165
SA ⟨*p. 372;* ➻⟩ p.29 Stringops large wings but no muscles for flight – colouring assimilative must be protective from Birds of Prey, whilst resting during the day
Part II
p.74, 75, 78 Cuckoo summer immigrant believed to be partly parasitic in incubating but not feeding its young
p.81. Birds, Zosterops which has spread from S. Isld. rapidly
84 Changed Instincts, also, has become permanent resident
94 Believes rats by destroying much chief cause of decrease of ●
95 Anthornis or Bell-bird – decorates nest with Brilliant feathers.
Part III & IV
167 Weka good-sized wings, but incapable of flight.

29 *1–4m, 6–7m, 8–10m, 16–19m, 17–25w* why as no beasts of prey Rats? There are Birds of Prey **33** *9–10m* **55** *15–23m, 37–42m* **56** *14–19m, 20–23m, 25–26m* **66** *19–29m* **74** *29u "another | visitant", 31–34m* **76** *11–16m* **78** *19–22m* **81** *1–6m, 6u "indigenous", 7–11m* **84** *6–15m, 20–25m* **93** *13–17m, 24–26m, 31–34m, 41–43m* **94** *7–9m* **95** *22–26m* **167** *6–10m* **219** *33–41m* **224** *11–20m* **242** *14–17m* **278** *6–16m*

BURBIDGE, Frederick William *Cultivated plants, their propagation and improvement* Edinburgh & London; William Blackwood & Sons; 1877 [CUL]
fg, hy, phy, v, y

NB p.34 size of seeds effects on growth of offspring
58 grafting, rules of
✍ species which will graft
95, 96 – on Variability
132 ⚭ – Hybrids dying young
155 ⚭ – on Hybrids taking after either parent

33 *26–33m, 28u "Dr Gustav Marck"* **34** *1–48m* **35** *3–9m, 5u "Professor Lehmann of Munich"* **58** *9–18m, 14w* Recipient *19–30m, 32–38m* **95** *4–17m, 18–27m, 28–39m, 42–43m* **96** *14–45m* **132** *18–34m* **155** *2–14m, 5–16m, 10u "comes | most", 26–31m, 38–43m* **156** *13–18m, 26–33m* **157** *36–43m* **159** *29m*
℘

BURCHELL, William John *Travels in the interior of Southern Africa* 2 vols.; London; Longman, Hurst, Rees, Orme and Brown; 1822 [Down, pre-B, S]
fg, tm

vol. 1 NB p529, 536 wonderfully hooked seed; with woodcut; 529 grapple plant
27 *8–9m* **101** *27–29m* **124** *23–24m* **158** *4m, 12–14m* **259** *1–3m* **409** *16–17m, 27–28m, 34–35m* **427** *13–14m, 24–27m* **428** *22–24m* **429** *10–11m* **529** *fig.m* **536** *10–14m*

vol. 2, 59 *1–6m, 10–12m* **69** *26–27m* **71** *32–33m* **72** *11m, 16m* **73** *13–14m* **74** *28–31m* **78** *12–13m* **172** *21–24m* **173** *zt* **207** *7–13m* **450** *22–27m*

BURGESS, Thomas Henry *The physiology or mechanism of blushing* London; John Churchill; 1839 [CUL]
beh, cc, cr, h, he, phy, sx, t, ud, y

NB1 p.1 Youth more liable – care more for opinion of others
Sighhing – Grief
NB2 ♦ p10 Expression
B says Blushing Hereditary in one family (both parents being never subject) except when one child diseased with cyanosis heart♦ –
SB1 p.1 Youth blushes
10 Description of fear
23 Female blush most
24 Designed by Creator, as check Th✎
♦– In Ezra & Nehemiah – Bible
♦31 scar in negro blushing
♦33 Mulattos
♦34 Otaheitians
38 Albinos blushing – (Iris)
43 Circassian do – disuse Th✎
48 Morbid sensibility Th→✎

50 Power of accusers
♦54 Causes
♦56 Infant do not blush, but redden with passion (evident do not blush) (old age no✍)
♦61 Hereditary
♦✍ 62 Blushing no proof of guilt x✎
68 Rage, expression of – Rage
♦114, 122 Why face blushes more –
♦125 Exposure to air
♦128 whole body glows
♦133 Sensation on face before blush
♦134 Concomitants of Blushing & Sham ⟨*ie Shame*⟩
Over
⟨*over*⟩
♦ <u>137</u>
♦ p156 – only a <u>moral</u> stimulus excite blush (not a passion) not shrugging shoulders (no shyness) commonest of all causes <u>or self consciousness</u> –
♦ 177 Decline of blush
N.B. Personal remark makes a person blush more than anything self consc
♦ This is differently on my view that vanity does not cause blush – it is on depressing self-consciousness which alone causes it – No a pretty girl who thinks a man is admires her will blush – One is more sensitive to the ill-feeling than good opinion of others.–
✍ 180 says depressing cannot be called either exciting or depressing
✏ ♦ 182 Herditary blushing 10 children
✍ ♦✏ tear-ducts in youngest
♣✍ ✔✎ 187 upbraiding shy people makes them worse
✍ 188 Edgeworth quoted (good)
All about Blushing except p68 Rage
<u>Burgess</u>
SB2 ✍ Burgess on Blushing p 10
Fear
in regard to voice in Aeneid
"Obstupui, steteruntque comae, et <u>vox faucibus haesit</u>"
⟨*over*⟩
Will the albinism observed by Dr B
Dr B "the strength alters the ●"
✍ Dr B observed with ♣ two albinos that th
"caused them to blush deeply.–

1 *9–10u "sensitive|conscious"* **10** *10–20m*♦ **11** *8–11m* **23** *1–3m, 1u "children and females"* **24** *3–5m/w* see to this *8–11m, 9–13"..."/12–13w* ◗ **25** *7u "Ezra", 8–11m/w* Ch IX.6, *20u "blush"/w* Jer Ch VI v. 15 *26u "a|wrought"* **31** *21–24m, 21"..."*✎*, 22a/c/w/23a/c/23–25 "..."*∉*, 28–29m/→* **32** *24–27m* **33** *5–8m, 13–16m* **34** *19–21m* **38** *23–26m* **39** *13–16m, 15m, 20–25m, 29→* **40** *4–8m, 4u "ears", 9–12m, 20–22m, 29m*

43 *6–9m, 13–16m* **48** *14–17m* **49** *3–7m, 12–15m* **50** *16–19m, 17u "presence|accusers"* **54** *wb* nearly all cases, his real & false blush, connected with what people will think of one – Remorse does not cause blush.– **56** *8u "hereditary", 13–15m, 15–16u "of old age"* **57** *9u "idiot", 13–14u "but|blush"* **61** *1–5m, 15–18m* **62** *6–11m/1–11w/wt* no test of guilt because the thought that the other was thinking of you suffices to cause it **68** *11–12u "flushed|fire", 17– 18e "My|rage", 19–21m/u "heart|rage", wb* glittering **69** *11–13m* **114** *9–13m, 19–24m, 20–23w* effects of use or Habit **122** *1–10w* but neck & ears colour *5–13m* **125** *20–29m* **128** *7–11m, 10u "epigastric"* **133** *18–20m* **134** *1–20w* mental agitation which affects heart and respiration *6–8w*♦ & Gratiolet good *10–11m/w*♦ p. 349 & 366 *22–28w* (awkward gestures) stammer peace of mind lost **156** *wt* He may shrug his shoulders voluntary – he may pretend to laugh *6–7w* affecting "to his mind" *9–12w* no shyness **177** *13–20m* **180** *21–25m* **182** *1–11m* **187** *19–23m, 22–24m/→* **188** *1–4m/2u "countenances", 5–7m* **189** *21–26m/24u "frequently wept"*

BURKE, Edmund *A philosophical inquiry into the origin of our ideas of the sublime and beautiful, with an introductory discourse concerning taste, and several other additions* London; Thomas M'Lean; 1823 [CUL.1900, I by G.V. Jackson]
beh, sx, t

NF ♦
The morality & Metaphysics of Ambition } ?
I am going to Italy next Summer
Sublimity
NB1 Simple Ambition instinct of excellence over other men satisfied (1)
Pride. ditto. with comparison to other men so as to undervalue them. (2)
Fame. desire that (1) should be generally known. & acknowledged (3)
Vanity, [do] (3) with undervaluation of others, or overvaluation of yourself (4)
Arrogance a determination to show pride without real pride having been attained
Conceit – pride without foundation and on trifling subjects?
➻ But the ideas raised by these words refer to peculiar kinds of character
NB2 He can see reason why instincts (sexual) of animals stronger than in man – because not having any notions of beauty to keep them in right line
these involve feeling triumph The➻ feeling➻ of➻ Sublimity akin to feeling of pure (1)

gratified ambition – connected preeminently with consciousness of being a sentient being arising from many ideas.– each preeminent of its class.– [feeling of triumph at being a sentient being] brought on by the thinking faculty by being very active & exhilarating (hence aided by bodily conditions) with power to look inwards = Euclid too absorbing = yet conclusions from mathematics sublime – Gravitation sublime – thinking on subject If pleasure from a source not well understood, sooner look to yourself & hence sublime –

iv *6m, 8m* **vi** *8m* **55** *9–17m* **56** *13–21m (Scipio, Cato)* **57** *21–25m* **58** *16–20m* **66** *zt* **103** *11–25z* **114** *14–15z* **115** *2–25z* **162** *13?/u "objects small"* **163** *5–10m* **191** *13–14m (Tommaso Campanella)*

BURMEISTER, Hermann *Beiträge zur Naturgeschichte der Rankenfüsser* Berlin; G. Rainer; 1834 [CUL]
em, fg, phy

14 *15–17m/w* eggs not contem○ impregnated **15** *3–5m* **16** *28–29m* **17** *20u "Organe"* **18** *3–5m/w* eye becomes double **19** *4–6m, 20–23m* **20** *20–24m/w* feelers & eyes thrown off **21** *10–11m, 23–27m* **22** *3–6!!* **23** *17–19m/w* no trace of seam in shell **24** *23–27m/w* calc. plates **25** *1–4m/w* epidermis on all young shells *26–30m/w* Ovaria within young shell **27** *5–6m* **28** *11–17m/w* eggs in different state in different parts **29** *1–2m* **30** *13–15m/14u "Gräten"/w* fish-bones *16–29m/w* Burmeisters description best of mouth.– **31** *14–18m/w* cissi all alike **35** *11–16!!* **37** *1–3m, 15u/wτ, 16u/w♦τ, 22–26m* **38** *4–6m, 19–20m* **40** *11–14m/w* case of moth *22–29m/w* pretty good **41** *1–3m, 14–16m/w* so cissus ant. are longest *19–20w* rest of cissi similar **45** *21–23m* **49** *13–16m* **50** *13–16m/w* compare with Cyprus *26–28m* **51** *26m, 26u "Stomatopoden", 27u "lässt | der", 28m 28m* **53** *5–6m, 12–13m*
pl. facing 60 *wt ⊄*

BURMEISTER, Hermann *Histoire de la création* Paris; F. Sary; 1870; trans. E. Maupas [CUL]

℘
656 *30–33m* **667** *31–36m*

BURMEISTER, Hermann *The organization of trilobites* London; The Ray Society; 1846; trans. Bell & Forbes [CUL]
co, ig, sp, t, ti, tm

NB p37 & 38 Species Theory
SB ❑β
p.37. The earlier geological types present peculiarities of various existing groups passing into one another Good Remark to quote
1 *zb* **33** *3–4m, 3–4w* 3 **37** *16–18m, 37–42m* **38** *1–6m, 12–17m, 12–17w* Mollusca! Corals support this
℘

BUSCH, Otto *Arthur Schopenhauer* München; Fr. Basserman; 1878 [Down, I] *℘*

BUSCH, Otto *Arthur Schopenhauer: Beitrag zu einer Dogmatik der Religionslosen* Heidelberg; Fr. Bassermann; 1877 [Down] *℘*

BUSCH, Otto Arthur *Naturgeschichte der Kunst* Heidelberg; Fr. Bassermann; 1877 [Down, I] *℘*

BUTLER, Samuel A. *Evolution old and new* London; Hardwick & Bogue; 1879 [Botany School, FD]

⟨markings presumed to be by FD⟩

BUTLER, Samuel A. *A sketch of modern and ancient geography for the use of schools* 4th edn; London; Longman, Hurst, Rees, Orme & Brown; 1818 [CUL, pre-B, S]

title pages *⟨much illegible scrawl⟩* **v** *2w* 4004 **vi** *2m, 7m* **vii** *37m, 39m, 41m* **viii** *4m* **ix** *11m, 21m, 25m* **x** *4m, 28m, 33m, 40m* **xi** *wt (dates), 5m, 45m* **xii** *7m* **xiii** *13m, 17m* **xiv** *9m, 27m, 42m* **xv** *17m, 22m, 25m, 32m, 38m* **xvi** *5m* **10** *wb¢¢* **11** *wt* ● **12** *11m* **13** *23m* **15** *16m* **17** *12m, 17m* **20** *8–14m, 17–20m* **31** *wt¢¢* **32** *10m* **33** *7m* **34** *18m* **35** *10m, zb* **36** *3m* **37** *32m* **39** *14m* **40** *1m* **41** *22m* **43** *3m* **51** *7m* **63** *zt, 2–15m* **64** *zb* **67** *24m* **84** *14m* **85** *18m* **89** *12m* **93** *20m* **97** *11m* **99** *16u "Ennius"/w* 169BC **100** *6w* 281 **104** *wt ⟨note about events of 264BC⟩* **122** *zt* **146** *27m* **148** *2u "Thucydides", 2–9w* son of Plorus an Athenian died 391 before Christ **149** *3m* **151** *6m* **153** *14m* **154** *11–20z, 23–25w* 449 died BC **155** *5m, 17m* **158** *16m* **159** *7m* **160** *5m* **161** *2m* **162** *11m* **163** *17m* **164** *16m* **166** *11m* **168** *2m, 23m* **169** *21m* **185** *wt (dates), 11u "Apelles and Hippocrates"* **186** *7–10w (dates), 9u "Zeno"* **191** *wt/8w (dates), 7u "Diogenes", 8u "Mithridates", 18m, 23u "Punic war"/w*✍ 218bc **192** *30u "Mithridates and Strabo", 32u "Pompey", 30w/31w/wb (dates)* **193** *17u "Lucullus", 18u "Mithridatic", 9–16w/17–19w/wt/wb (dates and events BC)* **194** *23u "Anaximenes"/w, 26u "Themistocles"/w (dates)*

195 *21m* **196** *10u "Strabo"/w (dates)* **199** *1m* **202** *17m* **209** *10m* **210** *26m* **237** *wt* ● **240** *2z* **241** *zt* **243** *zt* **249** *wt/5–8w* Mani Manc Mane Manc **251** *wt* 251 **253** *7w* Aegyptus **254** *wt*✍ Dr Darwin **255** *wt* DARWIN **258** *17m*

BÜTSCHLI, Otto *Studien über die ersten Entwicklungsvorgänge der Eizelle die Zelltheilung und die Conjugation der Infusorien* Frankfurt am Main; Christian Winter; 1876 [CUL, I]
fg, phy, sx

title page *11u "Bütschli", 16u "1876"* **207** *28–32m* **208** *5–12m/w* for a renewal of youth & a reformation of parts **209** *18–22m/18–19u↔, 27m* **210** *10–13m/10–11u↔, 19u "Vereinigung* | *Actinophrys", 22u "scheinlich* | *Encystirung", 31m/30–33w* Give Butschli first & Enger & then Carter **211** *19m, 22–28m/22–23u "dass* | *ist"/27u "Verjüngungsepoche"/26–30w* this is just what he has said about Infusoria *wb* According to this view Conjugation is a renewal of youth & size which gradually decreases & propagation thus division.– Process seems analogous **212** *2–11m/w* same process without conjugation or with 2 spores formed **214** *17–22m/22u "den* | *de Bary"/w* the first man *17–22m/w* He fully admits that conjugation is the first step to sexual copulation **215** *3u "Dagegen"/5u "wirkliche Befruchtung"/3–7m/w* not so ♣ with Proteus <u>infusoria</u> &c &c *10–17m/w* seems here all for connection of conjugation & sexual reproduction *22–24m/u "dass* | *erkennen"/w* Conclusiv *32u "1838"/m (J. Müller)* **216** *3–6m/w* seems to say that conjugation of infusoria is the same with s. generation *8–9u↔* **219** *9–26[...], 25–26u "erhalten* | *Fortpflanzung"* **252** *wb* p.207 to 219

CABOT, Louis *The immature state of the Odonata* 2 parts; Cambridge, Mass., University Press; 1872–1881 [Down]

Part 1 NB O/

CAMERANO, Lorenzo *La Scelta sessuale e i caratteri sessuali secondari nei coleotteri* Torino; Ermanno Loescher; 1880 [Down, I] ℘

CANDOLLE, Alphonse de *Géographie botanique raisonnée* 2 vols; Paris; J. Kessmann; 1855 [CUL]
ad, af, beh, cc, che, ci, co, cr, cs, ds, dv, ex, f, fg, fo, gd, geo, gr, h, he, hl, hy, ig, in, is, mg, mhp, mn, oo, phy, se, sl, sp, t, ts, v, ve, wd

vol. 1 NB1 p478 His ♣ Geogrph Regions
As there are only 3 – 5 Ascension Plants, & I think DeC speaks of several inhabitants, it is one of strongest case of many introduced plants.
NB2 Philology pxxii; p.xiii; p.xiv to end of Introduction
p535. Decandolle Memoir vol X on compositae
SB Mem. Carrier Pigeons caught at Dover – See McGillvry number of seeds in crop.
That Transport does little for continents, but much for isld. is what I shd have expected.– In Compositae & all others.– Proportion of seeds with plumes & small seeds ought to be great in islds; even if <u>not</u> same species.
It may be possible to take two great groups for comparison of range. it cd be useless, I think to compare orders of Vertebrata

SA *⟨pp. 528–529, 5 sheets⟩*
SA1
5. Sous-regions *⟨¢¢✍ showing⟩* 34 species to Fam.
3 Sous regions *⟨¢¢✍ showing⟩* 28 species to Fam
⟨over⟩
✏ 4. Sous-regions *⟨¢¢ showing⟩* 40 species to Fam.
This again is hostile, contrary to largest Families do not extend furthest
SA2–5 ❒ℜ
SA2 ✍
✏ Vol I p 516 Decandolle
⟨numbers of species in certain families totalled⟩
Water Plants seem to make large proportion of Monocot. – wide ranges
Taking the 23 Fams. of Dicot. & 4 Fams Monoc <u>together</u>, with more than 500 species; we have 27 Families, with species inhabiting more than 2. regions

⟨calculation that⟩ 4.5 is the standard of all Families whatever
⟨over⟩ ✏ *¢¢*♦
SA3 p.512 of Decandolle; *⟨list of numbers of species, and totals; names✍, ¢¢✏⟩*
⟨over⟩
✏ I think if Families are used, whole world or Continents shd be used as field of Compositae. But I cannot say why I think so ✍ May 1. 56 I have taken the Families (p.512. Decandolle) on other side *⟨above⟩* from Drege (Flora B.2. 1843). There are 21 (one omitted) Families, which have their species ranging over a ♣ larger number of the 20 divisions, into which the Cape District is divided. there the average (viz 1.6 regions) ♣ range of all the Dicots. & Ferns together? – These 21 Families have each on average 126.2 species, but if the Compositae from having more than double number of species be subtracted; then the average is only 77.1.– There are other 37 Families which range ♣ less than the general average mean of 1.6 & these have 87.9 species to Family. So that nothing can be inferred safely from these results, ♣ Families being too large.– [If we give a reasonable number to the Compositae, viz 500 species, then the average of the wide-ranging Families is 96.7]
SA4 *⟨✍ and ✏⟩*
Vol I p.516
⟨continues totalling numbers of species⟩
This gives for the 23 Families of Dicot with some 500 species, that the proportion of species ♣ per cent which inhabit more than 2 regions is 4.3. The standard for all Dicot being 4.1.– If we ♣ consider the ♣ 7 Families marked ✔✎ which I consider Tropical, & which have less means of spreading, for Tropics divided, we find these 7 large families have only 2.0 per cent species widely spreading, so that means of distribution come into play, & the remainder, wd be above 4.9. Those of Tropical Families, have 6044 species & only 124 in more than 2 Regions.–
⟨over⟩
Picking out Families with more than ♣ 500 species, no of species, no of wide rangers *⟨list follows, with species names and totals, some marked ✔✎⟩*
SA5 Dicoti only. Families with under ♣ 50 species.
⟨list follows, with species names and totals, and number of wide rangers⟩
⟨over⟩
⟨continues list from SA4; calculates that⟩

The standard of all Dicots is 4.1
✎ General Conclusions
✍ Families with more than 500 have a little above average of wide rangers & Fams beneath 50 rather fewer wide rangers, than average – But there is far greater difference ☞ according to nature of Family itself, than its mere size.
N.B. Decandolle does not use the very small Families, here used in his average.

SA6 ✏ *⟨pp. 560–561⟩*
Cruciferae – p.550
⟨table of totals of species and those in more than 2 regions in various islands⟩
N.B. If the Labiatae & Polygonum worked out this way, it wd show ♣ in how isolated ♣ spots some species of each Family occur.–
= 33/100 agrees nearly with Decandolle
I conclude islds must either have some easy way of getting inhabitants or double creations are tenable
⟨over⟩
⟨another similar table⟩ Compositae, p. 552
= 22 per cent leaving out Canary Isd only 13 per cent.

xii *24m* **xiii** *12–17m* **xiv** *7–10m* **xv** ⇑*9–5m/w* true **xx** *30–33m* **xxii** *34–36m* **xxviii** *19m, 34–35w* Individuality **xxix** *16–17w* Cultivated Plants *32m* **xxx** *21–22w* Definition of species **45** *19–33m* **47** *16–21m⟨FD⟩, 23–25m* **62** *6–7w⟨FD⟩* **72** *8–12m/10–11*Q *14–22m* **84** *8–22m/8–9?* **85** *7w* say read **88** ⇑*3–1z* **116** *36–39m* **117** *6–8m, 13–16m, 27–30m, 37–39m* **118** *6–9m, 16–21m* **144** *1–4m* **147** *4–7m, 9–10m, 17–25m* **156** *11w*♦ say read **183** *4w*♦ say read **200** *10–16m* **201** *1–7m/3–5w* examples of causes *28–31m* **202** *25–29m* **203** *36–38m* **238** *24–30m/w* Read *39–40m* **246** *18–26m/w* Does✍ this refer to America? if so ● or to Islands? **247** *2–7m, 6–8m* **250** *20–28m/w* I do not think even at lower limits except approaching a Desert **264** *10–11m, 12–16m/12–13u "enfin|nord"/15u "on|fait", 16–21m* **268** *9–11m* **270** *16–31m, 28u/29m/w* Spain **279** *10w* says read **305** *20w* say read. **316** *34m/32–34w* theoretical average of minimum height *34m/wb* I have no doubt native **326** *30–37m/→* **329** *14–21m/→* **330** *1–7m* **334** *4w*♦ I only read **337** *6–7m, 9–10m/9u "lat.|degrés", 15–16m, 15u "se|connaît", 25–28m, 27u "environ|trente", 30m/u "bord|degré"/→* **338** *5m, 41–43m* **339** *wt* Island Saxifrages *2u "aux|ouest", 3u "la|Asturies"* **340** *15–20m* **341** *23m* **343** *7–12m* **394** *20–24m, 32–34m* **395** *12–15m* **397** *20–22m, 23–24m, 25–28m, 32–38m, 39m/→* **398** *29–33m* **399** *8–15m* **406** *12–18z/w (circle with compass points marked), 31–36m/*

31u "8495", wb¢¢, zb (oval with compass points marked)/wb 4 times elongated E & W **407** *7w* arctic *11–13m/12u "Montagnes | Japon", 14u "Turquie d'Europe", 37u "Caucase"* **408** *15–18m/16–17w* S. America **410** *16–19m* **411** *25–29m, 31–32m* **412** *3–6m, 12–15m, 38–42m/40u "Sierra-Nevada"* **416** *11–13m/15–17m/7–20w* so make Alpine Plants of N America, so means more wonderful *24–26m* **417** *11–16w*♦ –But Asa Gray's Alpine plants are more than this alone. *35–38m, wb* The southern hemisphere of Hooker **418** *5–10m, 10–12m, 25–28m, 30–33m* **419** *wt* All used in the Chapter on Sociability – Struggle for existence – Stations & *wt* Not used on proportion of genera to range **422** *1–2m, 26–29m, 36–39m* **424** *36–40m* **428** *31–35m/32–33*Q **431** *38–39m* **444** *19m* **447** *28–34m*/→ **448** *8–10m, 11–13*Q *15–18m, 18–20*Q *21–23m, 35–36m* **450** *24–27m* **453** *12–17m/12–13*Q *21–26m, 27–36m* **454** *1–5m, 6–7m, 24–26*Q*/26–31m/26–37w* Every one of such species wd cover ground if no other species present: if rarity here is step to exclusion, then the greater importance of other organic beings is shown *wb* p463 near confines become rare necessarily, but yet, (at least sometimes) social; see top of p462 (Q) **455** *6–16m/8–9*Q♦*/wt* Not Q *22–23m, 26–28*Q *31u "caractéristique | blé"* **456** *1u "dans | cultures", 14u "Plante | champs", 40–44m/*Q **457** *15u "ne | absolu"/15–16w* because impossible **458** *1–3m* **459** *16–18w* I shall not Q. this *28u "espèce | sociale", 20–33w* a broad distinction in terms between repandu or diffused, & abundant or social. (a) see p. 463 *wb* (a) Does former depend chiefly on physical conditions the latter on other species ??? The latter must chiefly on other species, except where, perhaps conditions very peculiar. **460** *26–28m/36m/*Q*/25–38w/wb* I am inclined to think that H.C. Watson facts go only to show that most widely diffused are diffused likewise most in smaller areas: hardly descends to such minute areas as field. A species might abound on one spot & yet be rare over all England, but is this so? **461** *4m/u "nuisent", 19u "directement | indirectement", 6–29w* It comes to this, whether there are ♣ many social plants in good common soil? *25–26u "toutes | grand"/25–28m/*←, *11–12m/14–15m/12–20w* Alder in Larch-wood, but this must imply adaptation, else wd not grow up. *23–24*Q*/w* Mangrove forests *27–29m, 31u "les | alpines", 34–38m/36u "paraissent | abondance"/38u "d'être | moins"/31–39w* This is fact of same kind as not being dwarfed *38u±/wb* This is opposed quite to view that each form more depends on other organisms than on external conditions, *wb* ie great numbers to live *wb* But on the extreme limit of a desert, then plants grow separately, I think **462** *1–4m, 3–4m/4u "isolés | étroite"/wt* meadows very full of social plants *3a "espèce"* but not of all life? *5–9m/*Q*/wt* Q when a form can once live, then it may be social from mere number of seeds. & occupation.– *11u "en | isolés", 13–16m/w* (a) → *wt* (a) As long as conditions exactly same. in relation to physical nature & other species & its own ♣ excretions, then of course there will be many individuals, & so be social.– *13–14u "causes | locales"/12–15w* This must include other species. *19–23m/18–31w* Except (z) at the Cape, it seems the more fertile the land, the more diversified the flora; & according to me, it is more fertile of production in life in part because more diversified.– (z) The forest of firs grows slowly, for land poor & cold. ⇑*2–1*Q*/wb* case (z) explained by diversity of stations, such as occur in all dry regions.– as stated before *17–34m/w* I cannot but think the number of species, depends in part on the goodness of conditions; but why I do not see; much life causes much decay makes strata &c &c & many stations. for different times of year will have species all times of year. good. ⇑*11–9u "surtout | station",* ⇑*5–2w* This is cart before horse?? There wd not be many species without stations; yes, how many species can be introduced. *wb* a field of grass cannot be called so rich for so many genera. – (a damp rich tropical soil & a damp cold poor soil ought to be compared) **463** *wt* The many cases of introduction of new species into islands, shows the simple free-road to, from elsewhere created, is important element.– Creations not easy work thus also shown.– My theory shows how slow & difficult it must be.– Supply not equal to demand.– *8–9w* all this discussion strikes me as unsatisfactory, from struggle with other species, not being here prominent. *10–11w* Not Quoted *14–18m/w* depends, I think, on beating other species *14a "répandent"* no doubt one element *15a "vent"* Yet Compositae confined, *14–18m/?, 7–23w* He shows towards end of Book, that genera increase with no of species – but not I think with individuals – yes for mean density & decay create other stations) *20–25m, 26–29m/28a "communes"* but not yet social; but sociality and commonness bound together, for perhaps hardly one absolutely social plant to exclusion of all others, except such as Mangrove ⇑*6–5w* but yet it seems when does appear is sometimes social.

⇑4u/a "est | rare" Yet social plants occur near limit *⇑1u "de | elle", wb* A great diversity of forms will follow from adaptation to different stations (supposing free inroad), as well as from supposing a great amount of life, for the latter creates many stations, *↕w* Would not under same climate a uniform good soil support more diverse forms than uniform poor soil & climate? **464** *1–4m/wt/1–7w* No hardly – flatly contradicted by his social Plants. *8–11m/w* thus if compositae abound in many countries it must be due to their organisation; but if ♣ the species in certain countries are more or less common due to conditions *10a "les"* different *12–18m/w* Does this not imply that habits of species have more in common than they really have?– *wb*♦ One sees a Railway cutting temporarily covered with plants (in most cases only the natives of seeds) next year there wd be more seed, yet the abundance soon ceases.– here struggle comes in. **465** *wt* these tables refer to species being very generally dispersed within their own region of habitation.– *2–3Q 2nd table "composées".w* largest family *6u "1 sur 4", 10–15m/w* It wd be very curious to see what result wd follow from genera. calculated in this manner by averages *11–12u "mais | sensible"/12–14m/14u "soit | 100"/15u "18 | 45", 13–15X✎, wb* Can Families include too great a range of adaptations to answer for such calculations?? The resemblance in Families may be due to parentage? **466** *1–10m/w* Tropical Families have nearly as many common species as non tropical Families.– This shows how little adaptation to climate goes through a Family. *table "Phanérogames".w* standard *table.w* Here again it is clear that largest Families do not have greatest number of common species *⇑12–7m, ⇑4–3u↔, ⇑2–1m* **467** *1m/1–4w* & yet it may be social!!! p.462 *7u "17,8"/w* ie below the average of all Phanerogams. *9w* ie average *11w* the very small families have more than average!! *12–13m/w* quite opposed to my views.– *table "Phanérogames".w* standard *table.w* Here again same general law **468** *table.m/w* This goes as it shd do *2nd table "phanérogames".w/wb* These are 2 largest families & they have nearly 1/2 the common species, but single spears in other Families are excessively common **469** *27–31m/w* Doubt whether Watson not too large. *34–35m, 40–41m/w* doubts. **470** *wt* Ask Hooker about paragraph 3.– what it means *8–11m/10–11u♠, 13–14m, 16–17m, 18–20m/18–19u "moyens | remarquables", 20–23m, 19–24w* I cannot believe, much is due to this??? Yet it must be part element.– *23a "Quant"* to common species of *23–26m/?, 27w* ♣ What does he mean *31–32m/??, 34–36m/w* but excess of numbers very small *37–39m, 40–43m/Q/wb* "species with restricted range are not common" ie confined range & rarity go together. *⇑2m/⇑4–1w/wb* propagating by number may account for this to certain extent **471** *wt* Only those social plants which inhabit common ground are the difficult ones to understand. if such exist near limits *1a "sociale"* certainly if conditions peculiar *1–3m/1–8w* It shows that sociability does follow other laws than ♣ commonness; how can they help each other. or injure others? *4a "espèces"* Can means of propagation come into play *4u "circonstances locales", 5–8m/w* diffusion depends more on climate *7–8w* This like Benthams cases on Pyrenees. *16–21m/Q, 34u "c'est l'abondance"/34–37m/w* social plants most easily affected **472** *wt* If this fact of social plants entirely disappearing be true it shows again that there must be some other law.– It is analogous to social plants suddenly appearing on their limits *wt* If sociability depends on other species & not on external conditions, then very slight change might determine their existence *1–2m/6–9m/8u "par | naturelle"/1–16w* It is like change in Oyster Beds.– I cannot believe; flatly contradicted by History of shells.– No this seems to apply exclusively to plants social or not social in same area.– Is not part of this that social plants now conspicuous, espcially in forests *midpage.w* But it cannot be that every individual disappears from field *16–22w* It looks as if one individual protected another, & so this wd lessen when preyed on by insects &c: Trees, wind.– *24–28m/24–30w* Everyone knows how hard to rear few ears of corn in Garden.– my Radish seed from apparently mice *⇑11–7w* cross impregnation *⇑7–1w/wb* are social plants very defined in their adaptations: It has been shown I think greatly depends on number of other species adapted generally to same sort of conditions. *wb/↕w* – But why none in tropics; because oldest climate, & all species mostly perfectly adapted: most of the facts come to adaptation in preponderant degree.– *wb* These several cases seem to show that all the individuals of social plants disappear together owing I presume to rotation – **473** *wt* The Paris is well fitted as shown by its mere presence; it is social from numbers of seed sown: this I conclude must be

governing element, but easily overlooked in Tropics where more closely adapted species.– *2–12w* Destroy 5/6 of English plants & many wd become social which are ♣ not so now.– *4–32w* These two Pages not worth quoting *23–25m, 23–25m/w* of rotation *28–29m/29u "sur|considérable", 31u "de l'Europe", ⇑4–2m/!, wb/⇑15–1w* I wonder whether Cardoon is social in Europe? & spotted thistle of Pampas? If so it wd seem to be merely ♣ excellent adaptations, like when Railway cutting first exposed, due to seeds. *wb* Fennel – Hooker & Bentham say yes. **474** *1–2z/w* ordinary shape *⟨oval⟩, ⇑8u "endémique"/m, ⇑6u "sporadique", ⇑3m* **475** *1–2m, 21–26w* difficulties in defining areas & terms **476** *2–4m, 10–13w* Before making any calculations whatever skim over to p 519 *26–35m/28u "mais|rares"/33u "espèces|aire"", wb* Introduction **478** *wt/1–5w* Now the question is whether this applies to means of transportation or adaptation, probably the latter; for plants seem to have such power of spreading.– The adaptation must be to struggle with other species & not conditions *4–5u "de|famille"/5–9m/7w* (a) **479** *wt* The transportation is a theoretical question & implies single origin, & probably not considered by Decandolle. In Birds, according to Goulds idea, was considered with means of transportation.– The very nature of the areas, some continuous and others disconnected, shows he did not consider means of transportation. *22–23m/22–25w* Can it be right to run them together.– *22u "Archipel indien"/23u "Nouvelle-Guinée"/24–25m/?!!, 26u "Nouvelle-Zélande"/26–27m/w* are these distinct *32u "Bermudes"* **480** *1–26w* without knowing whether areas connected by continuous land or separated by sea, the results seem to me useless. How different cases of plants common to India, & Africa or tropical S America & ones common to Europe & Siberia, must make some difference. **481** *2–13w* Thus far it seems that intertropical species do not range so far as temperate (but tropical lands ♣ more divided by seas?) not the American provinces. *table.w* very regular laws indicated by this table. **484** *7–11m, 15–17m/15–32w* Q I cannot think why; this fact keeps very constant, see note below, when more species discovered so that a given percentage in each Family are sporadic **486** *1–4m* **488** *table.w* R. Brown **489** *table.m/w* Aetheogames = Mosses, Fern, Hepetiae, *⇑15–5m/⇑11u "730"/⇑8u "dont|Europe"/⇑7u "8"/⇑14–11w¢¢* **490** *table.m/w¢¢, wb* ?? So Auckland isld more in common with other countries, but less with Europe – If this community is the S American, it accords with glacial, having been subsequently peopled. Kerguelen ought to have been most with S America & less with Europe – See next Page.– So he counted ones about Glacial agency. **491** *2nd table.m/w* These must have come from North. **493** *table.w/wt* (What a contrast with the 730 Phanerogams of N.Zealand more water, more coast – more higher mountains.) Dryness alone most important element, but not enough to account for this difference *table "Phanérogames".w¢¢, table.w* Far larger proportion common to Europe than in N. Zealand & Auckland Isd; So far more species in Larch wood, than in all Falkland or Tristan I or Norfolk Isld. Only 272 in Society Islds *⇑18–1w* this shows how much free access determines the number of species: is not this against former continuity of Land. *table.→/5u "soit|100", 5u "soit 2,3", table.→/⇑5m, ⇑4u "1843", ⇑3–1w/wb* 5009+1686=6595 species of Phanerogams The fewness of European plants very interesting as compared with all land further South. Was not Africa the old Tropics? The glacial climate & ice action explains the greater community in other regions. **494** *wt* Von Buch only → Canary Isd Dicot 322+Mon 59=381 species. **496** *table.m (Dicotyledons)/w* so that Kamtschatka & Labrador have nearly same number of species in common with Europe. (Mem Iceland all in common) **497** *2–3m/u "Remarks|plants", 15–18m, ⇑2–1m, table.m/?/→/wb* what a contrast with Alpine Plants of N. America **498** *1–16w* These contrasts of numbers, show that islands never united to mainland *17–23w*♦ contrast with Falkland Isd *18–31w* Feroe 192 Dic+80 Mon=272 a contrast with the Oceanic islds **499** *⇑9–6m/wb* Is this owing to closer adaptation? or longer existence of simple plants, & ∴ part of existing means of dispersal. *wb/⇕w* Means of dispersal & adaptation are all confounded – in Cryptogams at least, means of dispersion wd come into play. *⇕w* The cases from which he argues are in very many cases islands; & even when same species occurs in 2 continents ♣ means of distribution must come into play.– **500** *8–12m, 17–19m, 21–29m, ⇑2u "mesure|découvertes"/⇑2–1m/wb/⇕w* I cannot think cause of this. Perhaps it is only that certain species of genera range far, like certain families in order: but why as discovery progresses, does the relative proportion keep constant? Does the proportion hold good in different countries ← I shd think it was only chance that more wide rangers ♣ were found & more local species. **502** *wt* can this have anything to do with Glacial Period? carried by ice from Tierra del Fuego? – but none could go from New Holland. At Glacial period New Holland very favourable for introduction of temperate plants. *1–4m, 6–8m, table.w* some compositae have wide range.– **503** *1–3m/2u "dont | France"/1–3w* water-plants (condition more uniform) *4–6m, table-title.w* This is the more important comparison? *table.m/w* These very large & natural Families have only a few: (a) *table.w/wt* These 13 Families have 149 species on average: they have 37 species in common with N. Holland, or average nearly 3 in common with N. Holland *2nd table.w* These 33 Families (those with less than 15 species being omitted) have 1541 species on average only 47 species each & not one in common *wb* (a) N.B. There is another element, besides facility of transport, the durability of same form. No – but this is the very point that we are considering that large Families are wide rangers & most convertible [but that it is only a few which are wide rangers; the others changed into species]: I see I have not clearly relation between very wide rangers & variability.– as in water plants. Indeed if wide rangers are only generally variable, then some wd be identic at great distances. **504** *2–4m/→/wt* Even if these are added to list on other side, the Families, which on average have larger number of species, have most in common with New Holland.– *3u "Lemnacées"/4u "Hydrocharidées"/5u "Lythrariées", 5u "Alismacées"/w* water. **505** *table.u "Composées"/w* some wide rangers *table.w* It is evident that the Glumaceae most widely spread. & I shd think means of distribution must come into play. *second table.⇑4–2m/→/w* compos. **507** *14–16m/15a "austral"* which are common to Southern islands & Europe.– **508** *wt* N.B. Pritchard shows the ♣ mntains go partly E & W in Lat 10° N.Africa. *9–15m/w* 96/7000 What a contrast with T del Fuego. *18–19u "et | Cap", 20u "ou | antérieures", table.m (Salsolacées)/w* Here again; must be owing to means of transport. *table.c "Fougères" "Phanérogames" "Composées"/wb* These 16 Fam. (with species in common with France) having 2222 species have 139 species per Family; ie nearly twice as large as those families which have not one: there wd have been none if Compositae had not been omitted *table.m "Composées"/w* so many omitted **509** *wt* The Cape & Europe valuable, because have means of distribution, cannot be so important as when islands are compared. – No Sahara – but how in glacial period.– *table.w* These 41 Fams. with 2895 species, have on average only 70 species to Famy. (wd it be worth great labour to calculate by genera.) *11u "pour | moins"/w* on account of smaller Families not giving true averages ◊ calculate this *2nd table.c "Fougères" "Phanérogames"/wb* These 21 Fams. having species in common with Cape, having 2438 species have an average of 116 species; if we ♣ leave out Compositae as so numerous (at least at Cape), we have 20 Fam with 1960 species each Fam. has 96 species – (ie double of those Fam. with no species in common) – see over **510** *2u "15 | moins"/table.m/wt* These 24 Fam. having 916 species (with none common to Cape) have an average of 38 species each *4[..., 2nd table.m "Composées"* **511** *table.w♦, 2nd table.w* see over There are numerous very small Families with very many species in common, which wd make case the more hostile *2nd table.m "Graminées...26"/w* can this be accurate? *wb* These 13 Fams *⟨in left half⟩* have only 36 species to Fam. & have 255 species in common to N. Africa *wb* These 13 Fam *⟨in right half⟩* have 52 species on average & only 243 in common. Here then the larger Families have fewer species in common with America. First hostile case. **512** *16–25m/w* These two groups might be contrasted *⇑13u "Documente | 1843"/⇑10u "plus | (a)"/⇑13–1w/wb* I might work at this Dividing the Plants into 2 groups of those ranging above the mean 1.6 those ranging beneath the mean – (Being continental wd depend not on means of transport) & not tropic come in, or so much astounding range of water plants *⇑1m, wb* Would it be possible to work out this in genera??? Taking for instance the genera found in 2 & upward sous-regions & see what average of species such genera have, ie of general average of genera, or give or take those Genera found in only one sub-region **513** *wt* N.B. Hooker says Dreges Book is great Book with elaborate distrib: (perhaps in Linn Soc) & he will lend me; good to work out genera larger & small for distribution.– Does not give genera, only Families *5w* 22 *6–7m/w* omit this in calculation *9w♦, 18w* 37 Ledebour *⇑12–5w♦* I feel sure that this wd be hostile to view that largest Families range furthest *⇑8–4m/⇑2w* This is mean *⇑2u "6366 | près"*

514 *wt* F. Water Plants demonstrate that some element quite distinct from numbers of species, come into play in wide distribution. Is not same thing observable in Salsolaceae? love of salt? **515** *wt* This table gives the <u>proportion</u> in each of the named Families of the wide ranging species to the whole number of species in the Family.– **516** *1–39w* This table looks ♣ hostile Can my view be applicable only to single continuous regions; if so, Cape of Good Hope & Russia wd be excellent.– **517** *20–22w* V. note p.519 ♣ <u>anomalous</u> **518** *table.m "9 à 7,1" "1 à 0"/w* These 2 might be compared *table."1 à 0".w* But these seem mostly tropical **519** *3–9m, 9u "dans | infère", 18u "Calyciflores | compliquée", 20–23m/20–27w* according to this one ought to compare ♣ size of Families in same great division & not as I have done in great totals. *26–29m, 28–29m, 29–33m* **520** *13–15m, 29–32m/30–38w* Marshes cannot be so uniform in conditions. But Marsh Birds visit **521** *11–14m/w* ie Marsh Plants *16–17m, 23–24u "la | salés", 35–36u "les | grande"* **522** *table.w* Table of acquatic & Marsh Plants *34–35u↔/w* This looks like conditions *8–10m* **523** *8–11m/w* conditions & means of transportation here explained. *20u "plantes annuelles", 38–39u±* **524** *4–5m, 8–11m, 12–14m/?/13u "plantes | arides"/14u "semblent"/13–23w* why? few other species or inhabitants, this wd apply to water-plants & sea-side plants.– ⇑*4–1m* **525** *12–15m, 17–18m, 28–34m* **526** *table-title.m/u* **527** ↕*w* Trees often dioicous chance transport of one seed insufficient Might be tested by other dioicous Plants. ⇑*6–1m/w* Trees most limited. Herbaceous plants next – annuals most widely – can live in hot countries during their winter *wb* Does not this depend on means of dispersal, as annuals for very conditions of life must have great means of dispersal.– *wb* Trees depend less on means of dispersal **528** *table.w* Have these big seeds? What can reason be? Mostly Tropical **529** *2–3m, 10–11m, 21–22m/22–23u "que | mer", 32–35m/w/wb* What can reason be Higher developed & more changeable **530** *2–3m, 5–6m/w* small seeds **531** *table.w* In same Families distribution according to annual & herbaceous & trees. All accord in same general Result.– **532** *12–15m/w* no general rule means of distribution greater or less *18–20m/w* seeds in proportion small *20w/1–20w* There is, also, relation of size & highness in series.– Because big requires more food & is therefore a flourishing organism.– ⇑*15–1w/*→/⇑*9–5w* (a) If I am right on size, wd go to show wind.– But then Compositae!! Yet here the ♣ transportation comes into play; but then the <u>Genera</u> ought to be widely distributed. How is this.– This ought to be worked out in Decandolle → or better look to Flora of islands & see whether genera of Compositae more usually the other genus. ⇑*5u "peut-être beaucoup"*, ⇑*4u "reproduction | dissémination"*, *wb* (a) Means of distribution coming in so importantly is quite in accord with Barriers (ie the stopping of distribution) being so effective; so beyond anything the most important **533** *11u "Ailes"/w* or pappus *12u↔, 17–18m, 26–27m, 29m/w* This does not concern wind *32–33m, 38m/w* I wonder whether in Royal or Linnean Soc.– *wb* If I am able to add anything new to Decandolle to means of transport, it will show how curiously imperfect our knowledge is.– **534** *4–6m, 7–10m* **535** *wt* Wind generally accompanied by Rain will the pappus then cause seed to stick?? *table.w* I must study distribution of genera. ⇑*14–1m* **536** *wt* (a) Note/ the proportion of genera with single species with & without pappus nearly the same: if transported by pappus & transmuted, then ought the most genera with single species with pappus *1–20w* As these calculations include many continents, the seeds cannot be more transported than others. *5–7m, 19–25m/*↕*w* ∴ Pappus, therefore, would seem to act like hooks which can transport to only short distance: remember no transport avails except it be to unoccupied land: no false look at introduced plants ⇑*17–10m/*⇑*11–10m*, ⇑*9m/w* (see last page) ⇑*5–3m/w* (a) **537** *6–9m/6u "2,2"/7u "2,9", 9m, 13–14m, 17–18m, 20w* Range rather small *20–21w* therefore rather peary I shd think **538** *1–2m, table.w* In same Family species with fleshy fruit have widest range; is it because animals eat them? *31–32m, 38–39m, wb* without Isld are specially considered, I hardly dare trust these discussions, for my purpose, as adaptation must so overrule powers of dispersion **539** *2m, 3m* **540** *3–7m/3–7u±/w* what complication. **541** ⇑*5–2m* **544** *23–26m, 33–37m/w* Russia may be considered as new country peopled from whole South **545** *3–5m, 28–34m/29–37w* Here isolation clearly comes into play; but this does not account for smaller range of plants within Cape District. *38u "Flora, 1843"* **546** *16–22m* **550** *table.w* As far as I can see (which is very little) isolation of area seems to have little to do with confinement of species!! In this Family **552** *wt* Here again it seems perfectly insulated regions have the

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wide-ranging species in greater proportion; this cd happen whether formerly connected by land, or chance introductions: <u>No</u> if isld was only a bit of a continent, it would not be so, but if it received species, then it wd have wide rangers ☞✎, *left half of table: 17m, 18m, 21m, 26m, 28m, 29m, 30m, 42m, 45m, 48m, 49m, right half of table, 12u "purement insulaires"/w* New Holland Mem *13–16m, 20–26m/!* **554** *wt* Here again the less the connexion between the areas forming one group, the more species they have which are generally wide rangers or Isld generally possess large proportion of wide ranging species. *table.m, 2nd table.m/wb* Caledonia ♣ **555** *table.w* 59 regions ⇑*1u*↔, ⇑*4m/wb* !This exactly opposite result to top of last page **558** *table.w* This agrees with Bentham **559** *18–19m, 25–28m/w* uniform bad conditions & means of dispersal *37–40m/w* can think of no explanation ♣ *wb* Give this as example of unexplained facts or law **560** *8–9m, 12–13u*↔*/12–25w* great regions more separated, but how can this bear on distribution <u>within</u> Cape Region. The very wide rangers which inhabit different great regions will a fortiori inhabit the smallest.– *23m/a "proportion"* of wide rangers *28–32m, 33–37m, 33–36m/w/wb* North most united before Glacial, or rather by ice action during glacial. and Before Glacial action **561** *1–4m/3u "Crucifères"/4m/u "Composées"/3–13w*◆ try this with really oceanic isld say only volcanic isld – It is here done: no great difference *10–11u "présentent | autres", 11–17m, 20–26m, 28–30m, 35–40m/38–39*Q✍*/35–40w* I shd have looked at this just contrariwise *wb* I never shd look at it under this light; yet perhaps agrees with Herbert's views – When then only few species, we must suppose either others extinct, or then few only as yet introduced. **562** *1–4m/1–10w* All this opposed to groups with largest number of species having widest rangers *16–17u "indiquent | petit"/17–18m/16–20w* This perhaps comes into law that great wanderers are very great wanderers. *32–36m/37–40m/30–38w* in fact isolation by deserts or climate or sea equal **563** *1–3m,* _12u↔, 13*, 20–30m_ **564** *15m/w* introduced *36–38m/w* 1/2 world **567** *46u* **569** *46–48m (Hooker)* **573** *44–46m* **579** *32–37m* **581** *24–25m, 36–39m/38u "d'un | cultivé"* **582** *3–4m, 9–13w* 47/117 acquatic or semi-acquatic ! *26–33w¢¢,* ⇑*14–13m/*⇑*15–7w* This looks as if due to ♣ unoccupied site ⇑*2–1m/wb¢¢* **583** *3–4m, 18m* **584** *2–5m, 15–17m, 21–22m/21u "en Abyssinie", 30–33m, 30–35m, 38–40m* **585** *1–3m, 15u "La | Légumineuses"/15–17m, 19–21m/w* (a) *26–27m, wb* (a) yet how extraordinary the law lately developed, that where there are few species of a Family, then average range is greater than when many.– species occur.– The latter are local vars. considered as species **586** *1–3m/*Q *3–6m/5u "à | baies", 12–14m, 15–16m* **587** *12–14m, 22–29m/22–24w* very local plants *34–39m* **588** *13–14m/12–32w* This bears on ♣ few species inhabiting 2 areas, where there are many species. Does it not come to this, that widely extended species break into varieties & these become species. with confined ranges.– anyhow this shows how complicated a question it is *21–25m, 36–38m/37u "restreintes | vastes"* **590** *28–30m/27a "la"* Mediterranean **591** *11–13m, 22–23m, 30–31m/u "12000 | existent", 34–36m, 36–38m* **592** *7–11m/w* Labrador lately colonised, *11–16m* **594** *14–16m/13–20w* This is important for shows creation by adaptation does not explain. see p.599 *28–30m* **595** *1–7m* **596** *2–5m, 36–37m, 37–39m* **597** ⇑*22–20m/*⇑*22–9w* No, because opposed to generally contest within <u>same</u> Families:– <u>One</u> Family may fail over world. animals or insects allied over world. ⇑*12u "Rutacées",* ⇑*12u "Zygophyllacées"/*⇑*13–5m/w* (a) *wb* (a) Here is case in ease with which var. changes into species; & tending to extinction: Rutaceae & Zygophylleae small orders in alliance of Rutaceae, which has several small orders *wb* Antiquity of sp. anoth cause. Most complex problem **598** *18–21m/18–25w* seems to attribute much to simple fact of ancient existence. *30–34m/w* contrasts these islands in range *37–39m/wb* here comes in creation: they are new in North. **599** *2–4m, 24w* Marsh Plants *26–28m, 29–30m, 37–40w/wb* speculation, which I shall introduce on Fish, bears on this; changes of River courses: most lakes connected with streams.– How many fresh water deposits with recent shells.– ⇑*1u "aux causes"/wb* why, mere hypothesis **600** *2u "ou | espèces"/2–4m/wt/1–7w* I think many acquatic plants are <u>social</u>, which is proof not fully occupied; see to this I remember it is in salt-marshes, water-lilies Reeds & Flags &c. *9–11m/w* whirlwinds *23–28m, 38u "Protacées"/38–40m* **601** *5–7m, 23–25m, 28–29u "comme | plantes", 29–31m/w* no evidence for this *32–34m* **602** *table "régions arctiques".m/u "Petits | espèces"/?/w* recently unoccupied area *"régions tempérées".m/?, "régions australes".u "Petit nombre"/?/m/??!,* ⇑*3–2u "les | extrême"/m/wb* ∴ closely adapted: parasites opposed to this.– **603** *table "marais".u "Uniformité | physique"/m/!!!/w* why this was contradicted *"plantes nivales".m/!!,* *"forêts".m/u "époque|glaciers"/!!* **604** *table-title.m, "Organisation simple".m/wt* I see he always thinks simple organisation & ancientness corelated. More probably is related to adaptation to diverse conditions. I presume complexity or highness & close adaptation go together. **605** *38m, 44m, 46m*

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NF Read & write sketch & look over; Read Hooker Galapagos New Zealand & Flora Antarctica
SF ❐ℜ
✍ When this read skim over (make index); Reread Hooker N. Zealand & & Fl. Antarctica &✏ Galapagos; Skim my own portfolio; Then read my own old sketch, & write essay
compare D.C. list of introduced Plants in America & see whether they abound in vars. & whether large genera: taking average of species with vars. in whole U. States Flora – but those very sparingly introduced ought to be excluded.–
NB p.1130 ask; 1179 ♣ ask ♣; 1332.– Error (about Potatoes
♣ on absolute numbers in small distant islands.–
If Decandolle cd be trusted we shd have ♣ greatest difficulty to transport seeds from isld to isld in same archipelago & as most volcanic archipelagoes are rising we shd have the wondrous spectacle of a naked isld somewhere in ocean.–
Isolation most important, as preventing migration & so altering conditions, & making gaps in economy of nature, & quite secondarily causing organisms to vary. Also few individuals would aid in checking crossing, especially the bisexual.– A vigorous wider spreading spec, & which consequently varies, when isolated, under most favourable conditions to vary. Possibly isolation not long enough in many cases, as in Alps & F.W. Fish.– Few individuals for isolation, & this gives bad chance of new forms, but time wd make up for that.–

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p.72 p.117,8, 147, 201, 203 Adaptation to external conditions, chiefly climate, showing how differences of temp. will affect differently diff. plants, on trees exposed to whole year cold hence (I shd think, dwarfed
p.264 more height no influence; hence alpine plants show nature of former Glacial land better than arctic plants.
–p.268. humidity.–394–418 ♣
x✏ 238 on difference in leafing &c of Beech in Madeira. Read essay 397?
246 on sea not determining limits of plants in Europe
250 Nothing said about sterility of plants at lower limit of range [ask Watson or Decandolle at some future time] shows limit dependent on other forms.
✑ though they are sterile at upper limit
270 Alpine Plants. 316–327, 329 Polar & height limits are corresponding in different species; 407 Japan Mts; 412 Spain –
✑ p416 bears on general forms of area of Plants.; 490 Bears on Glacial Period
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465 to 470 Q✑ on relation of frequency & largeness of genera; bears on extinction.–
503 – 509 in connection with very wide ♣ ranging genera or Fams. & large genera. see infra
x✎ 476. When species in 2 distinct countries are generally in intermediate – ratio of wide ranging species & families. Families which range furthest, without regard to obstacles. There is p484 great distinction between Weak species & very widely extended species, ie when a species is once a spreader it spreads widely. 490 Proportion of N. Zealand & Auckland Is. &c with Europe & & 505.– on expansion of absolute numbers within Larch wood. On relations of polar districts to each other. 496✏ Labrador, Kamtschạka & Europe 499 Low plants 519 ⟨*u*✎⟩ Q✑ range furthest ✑ with exceptions p500.– 498 Bears on former continuity of Islands & continents.
✏ Decandolle ● plants not being spread N
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503. 509. On largeness of groups & wide ranging. 511 hostile.
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other causes determining range.– also greater division of Tropical land.
519 on wide range of acquatic plants 522 good index.– do Marshes yet not so uniform 521 sea-side plants do
527, 532 Trees much limited; herbaceous plants next; lastly annuals – good MS. remarks. Bears on distribution of F.Water productions
533 to 540 on ♣ Range in relation to nature of seeds
544 to 563 ♣ Range in different countries as Russia & Cape &c & Islands
563 Plants which range over 1/3 of world p.582 47/117 semi-acquatic/ p584 108/117 in N. temp & arctic lands, where land continuous, good to show effect of continuity – so good remark on same plants 584 being found on the intermediate islands
587. Azores less endemic sp. than Canaries; Färoe has none – cases of very local species

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594 shows extension of acquatic plants cannot be explained by uniform conditions p. 599 do
595 winged Compositae not large range p. 600 small seeds widest rangers 596 not large-fruited seeds.
597 to 600 On sp. of same Families having small range in very different countries, but that they come into competition with nearly same Fam.– Good about dominant species spreading:– Long & Good Discussion on this subject
Vol 2 Naturalisation. by Nature & by Man
608 Each sp. not perfectly adapted to its own home, & [good] good MS remark physical causes cannot engender new species perfectly adapted
613 seeds blown up 5400 feet & effects of wind
617 currents of sea (Madeira to Canaries) note 616 20 years in F. Water alive
618 action of Birds on transportation in various ways. (p769 admits agency of Hooks 797 good)
624 seeds alive in earth.
629 Cases of naturalised plants confined to few localities in new country. [Cardoon, Guava Peaches & Oranges several cases
631 Few disjoined species, & even species of same genus generally in same country
631 Cases of aboriginals, which are often injured by weather or do not ripen seeds. [this again shows want of perfect adaptation in indigenes.
632 Curious case of irregular distribution chiefly F. W. Plants: [Birds now rarer] good suspicion. one may say that means wd be now less effectual.
637 List of plants which have spread recently moderate distances
645 List of nat. plants in Britain [compare with Hookers list ♣ of nat. Plants f. in Australia ♣
698 Resume on do. 83 certain – 10/83 from America & Discussion on causes.
709 722 Nat. at great distances. in various countries; Europe/U. States 716 in 26 years 600 miles of Lat. Many other good facts of rapidity/– 720 Monte Video cases, when became social/ Juan Fernandez on Australian list.
723 Plants nat. in Europe since ♣ date of Columbus; from all countries (Compare with Australian List)
742 Resume on do. 64 sp. good in contrast to many on islands (None from any island) No p. 754). The introduced sp. are wide rangers in home
746 Plants nat. in N. America (751 Nat. plant in many countries & wider range than its own nat.)
754 Resume of do. p755 (proportion 122: 35) of plants of 2 worlds.– Proportion of Fams. of Nat. Plants nearly same as of indigenous in Europe.–
(p.759) the naturalised plants here again wide rangers in Home
761 Plants probably from merely scientific reasons nats. by nature in Tropics of Africa & S. America
796 Resume on – shows very few cases from continent to continent.
797 Again rule that naturalised, were originally spread widely & have naturalised widely
798 On difficulty of succeeding in naturalising a plant. When tried intentionally good to show importance of struggle
804. The species which ♣ have become naturalised belong it seems to Fam. which

have not wide average nat. range; but that does not concern me ♣ on account of specification; if the individual species have that is all
Overlooks time See MS remark.

3
Alph De Candolle for Vol 2. &3.

807 Recent Fir trees extinct in Ireland & Shetland Isd – Faroe & Nut–trees.–
995 cases of trees with Disjoined ranges (Alpine, Glacial & 996
Disjoined acquatic Plants
999 After Glacial period more lakes – p 1024
Eriocaulon 1027–1029 – Nymphaea W. Plant range of.
1007 Disjoined Alpine Plants to 1019
1019 Alpine Disjoined Species (but some partly glacial) connected with being aberrant forms. p1035 get Hooker to look over lists.
1025 Inter-Tropical Disjoined species.
1030 Cyperus polystachyus hot soil. Mem. Hooker Himalayan Cyperus in Hot Springs – shows a genus adapted to become fitted for peculiar site.
1034. No sp. common to S America & S. Asia, unless also fd in Africa – why on theory of creation? good
1036 Sp. common to Mauritius, Madagascar & India. do. difference is in Bourbon & Mauritius.
1047 Good discussion on Disjoined species.
1047. Species common to N. and S. not found in Tropics. Glacial: Antarctic ocean 1054.
1055 Conclusion on Disjoined Sp. races
1056 on ancients causes of dispersion. remarks in general
1062 on antiquity of species – old Trees
1067 Brongniart on relation of American & Europe in vegetation fossils
1092 to 1104 On Origin of Sp. Extinction, Isolation
1097 Concentration of close species the rule &c
1110 Multiple origin of species (1116 do)
1127 Genera more real than species.
1129 some analogy intimated between all species of genus (1131 do) see my reference below 1145
1130 Disjointed genera – 1132 Metropolis of genera with wandering species
1133 small genera with few far separated species [Glacial] a difficulty here.
1137 The bigger the genus the wider its area of extension; specially if it has sub-genera
1138 Relation of area of genus to that of its component species

1141 Genera confined to single isld with several species.–
1141 Case of Genera with very wide & very narrow Ranges: Average range.
1144 number of individuals not guide to aboriginal country, but number of species is so.
1145 External characters go with consti: differences, as shown by crossing & grafting.
1146 Cannot explain by any cause Distrib. of Families. 1149
1151 Distribution of Families like species of a genus.–
1152 Outlying genera abnormal or aberrant
1153 Single species ranging far taking place or representing or equivalent in distribution many local species in other cases.

4
Alph De Candolle 2d & 3d Vols.

1158 Fams. with immense ranges & local
List of small Fam. with few genera & few species (Aberrant)
1161 Concentration of genera – not range in proportion to number of species.
1165 I suspect lower Fams. more broken?? good if I could show as it could be due to increase in number of species in higher Fams.– No. Higher Reptiles. higher Mollusc. Higher or more Reptilian Fish most broken: if contest within each Family it would be so.–
1170 Definition of Dominant families, which have most species.
1172 on number of species to genera & to Families in various areas.
1176 On proportions of species of Dicot & Monocot in different countries & Islands
1180 Something in common with regard to Temp. even in all Monocot. & Dicot. So on (1185) Mountains 1188 Humidity chief relation in the Mono. & Dicot.
1189 to 1233 On the Dominant Families in various countries & Islands.
1233 Discussion on & good M.S. remarks.
1236 The richer in species any area, the greater the no of Families, ie more diversity in inhabitants
1237 Under unfavourable conditions the great & dominant Families only survive.
– The Dominant Fams. over world are not always in same proportion to most numerous; they seem to be the increasing Families.–
1238 On how far the dominant Fams. are affected by climate. The most dom. seem now very complex. 1241. Even in Tropics Leguminosae, Compos. & Gram. are the dominant Fams.
1247. Local dominant Fams, at Cape &

Australia (1251 for cases)
1249 good sentence, cannot explain proportion of Fams. in Islds by conditions.
1252 Arctic Regions very peculiar conditions yet very few peculiar forms, no Fam. Good
1254 Excellent Table of "characteristic" Fams. (not found elsewhere) over whole world 1258 Detailed Table.
1267 On families with double & treble centres.
1267 Glacial
✏ 1268 good Glacial 1269 Cape at base of Page.
1271 Total no. of species in areas of various sizes (1273 small areas)
1275 same sp. range more widely in Sweden than in France 1276 still less widely at Cape & S. Australia
1279 & 1282 On number of species in small islds.–
1278 Africa, tropical poor in species & very poor in characteristic Fams. (for latter see 1254 & 1268)
1287 On proportion of no. of species to genera in various countries & 1288 Islands.
1289 good discussion bearing on the problems of more life supported by more forms (1298) and generally on insular Forms.– 1293 often monotypic – ie preserved from extinction. 1297 Islands again
1308 First great Division of Distribution of World are not related to Climate, like the forms of land.
1309 remarks Old & New Worlds greatest division.–
5
Alph De Candolle (Vol 2. & 3 of mine)
1313 Plants of Europe in relation to Glacial.
1326 Glacial
1326 Lyell on most ancient sp. most repanded.
1329 Vegetation of Madagascar allied to India
1330 Africa & America never united all points to ancient Broken Land.
– Many species in common to Mountains of W.Indies Glacial. California & Chile
1331 & 2 on Plants of Pacific islds
1332 Ligneous Lobelia in Tahiti
1333 Submerged countries when elevated have uniform vegetation
1334 admits some species are derived by modification
1340 Cause physique of present period one of subordinate importance.
Feb. 17th 1860 I have now abstracted whole grand Work.

SA1–10 ⟨*pp. 878–879*⟩
SA1 ❐ℜ
Introduction
♣ p72 Hence dwarf?; 84; 116,8; 144; 147; p.238
200 – influence of other species overlooked here & in similar cases.–
202 & so here. A cause which prevents more than 1/20,000 seeds vegetating or giving full-grown plant.– ☞✎ Here in this page: preoccupation overlooked. How little climate explains what species are common & what rare in same district – When ground preoccupied seeds of other plants wd have to arrive at period, when not in full vegetation.– good✎
♣ 246; 250; 264, 68; 270; 326; 395; 397; 406, 408 to 418; 422; 447 to 474 to)
SA2
p465 DeCandolle Books to see whether frequency goes with genera, as it does in Families, not in latter markedly in larger Families.
Boreau Flore du centre de la France
Miquel Disquisition Geograph Bot de Plantarum Regni Batavi Distrib 1837 Lugd: Batav:
Furnrohr Flore de Ratisbonne in Naturhist. Top. Regensburg 1839
♣ De Plantis Salvadoricis 1830 Ev. Meyer
Meyer on Cape Plants p509 & 512
SA3–6 ❐ℜ
SA3 ✍
Oct. 15/55/: As every organism struggles for life: the individuals of every species, will try to adapt itself to several stations (of course chiefly wide-spread species will meet with such) for thus more will live. Why a species cannot adapt itself to all stations, depends probably on hereditary laws & actual chemical nature of its body.– But it may be said ♣ more will✏ live by being adapted to several stations; I think this is obvious; we might kill probably many species adapted to flourish under trees
✏ (or food of which species wd disappear & decay if they not present)
without proportionally more trees – (or more chemical change, best measure of amount of live) ♣ living.– The better the conditions the more the life; & the more the life, probably the more the forms
✏ see p 462 Tome I Decandolle why? I cannot prove this
✏ (at least the more the small diversity of forms ie species, the more the great diversity ie genera, but not in same ratio.
– though the latter ⟨*ie number of forms*⟩ chiefly

depends on diversity of conditions, & ♣ for plants, at least, as Decandolle fils

⟨*over*⟩ has shown are most in warm, dry countries. Under peculiar conditions, small stations, there may be a good deal of life & yet few forms,– as in arctic seas,– do the forms live throughout seas? or are they not short-lived. Why have Lakes few forms? no tides, not much diversity; no estuary of brackish water

✏ The question which I cannot answer is, why under bad climatal or soil conditions there shd be fewer forms than under good climate & soil. ie when little life, few forms but most diversified in stations.– → ⟨*to SA4*⟩

♣ I think Decandolle explains why fewer social plants in good climate & soil. viz where more species there will be more neat adaptation.– → ⟨*to SA4*⟩

I can see in case of salt marshes, because like small isolated isld (for salt-marshes are isolated by conditions themselves) there has not been room for creation: all the salt-marshes in world under approximately similar climate wd make but a small world.– All F.W. Lakes of same climate (besides too much separation) are likewise small.– Land fitted for heaths small – Even arctic seas small, especially if killed in winter.–

SA4 → ⟨*from SA3*⟩ My old question why so much life in North Seas, & so few forms, is probably in fact an illusion, the eye struck by number of same species. One is surprised to see any life compared with arctic Land.–

(Small area only bad from fewness of individuals giving chance of new forms, hence this is opposed to isolation being advantageous)

→ ⟨*from SA3*⟩ In bad climate & soil, the amount of live, from slow growth probably smaller than it appears & number of forms perhaps really in proportion to quantity of live considerable.– It has acquired a great laboratory to make all forms – Perhaps once there was no arctic Regions.– Hence few Alpine plants on really isolated Mountains.–

this caused by slowness of creation

Caspian biggest brackish water & a good many species.

⟨*over*⟩ ✍

We may move to discussion on number of species. (N.B. few species, but many individuals in salt marshes) with the distribution of mammifers on premise that I exclude Cetacea, Chriopter & Seals?) The presence of Bats ♣ very strong case.–

✏ Is not Madagascar a great opposed fact to my views of distribution of Mammifers – perhaps so large as to rank with Australia – very separate & mammifers very like.–

(The way the Inula & Alders & Gorse, appeared in patches, shows seeds a very important element)

Ought the law of ♣ common plants belonging to large families, as is faintly case with Decandolle facts, to be common to large genera. A Family may & does contain many genera not increasing, but then a genus may & does contain many species not increasing. If on average genera contain forms more closely allied, & either decreasing or increasing more regularly, then the law wd hold more with genera than with Families – How does a Family increase by the genera increasing & splitting up & other genera dying out &c Family turns into an alliance by a few portions only increasing ∴ I think law always better tested by genera than by Families.–

Some agricultural green crops are said to be advantageous because they smother weeds Here abundance of seed is important

SA5 ✍ Feb 15/57/: In every small area ♣ if not of some extraordinary nature, there are many genera to species. ie much diversity in organisms & no great number of individuals in relation to species – Sqr yard of Lawn – a single wood – ♣ a coral islet – an islet of any kind.– This depends on most ♣ life being supported on small area.–

aaa But if the site be very peculiar, the former part of law fails, & species not very different as on Heaths – saline plains Cyperaceae as in Hots-pools (Hooker Himalayan Journ) there peculiar adaptations will come into play: In these cases ♣ there are also generally many individuals in comparison to species because only few things can live there. ♣

⟨*over*⟩

Diversity of sites great cause of most numerous species (D.C. explains well effect of dryness). Subject to this I shd expect & believe it is, that most species when most life, for as organisms are so intimately related to organisms this will in itself cause more species. And this bears on unfavourable conditions, as Arctic Regions &c

SA6 aa If the site be small, & somewhat peculiar ♣ as compared to rest of world, As in arctic regions (near winter) Alpine summits – Lakes of F. Water – then there will be many genera to species, & very many individuals to species.–

why is this I believe because laboratory small; if in nearly whole world, with myriads

of individuals selection has effected what we see, we could not expect so much for restricted ♣sites, specially if of no great antiquity: as Arctic Regions – [N.B. this is contradicted by islands; No but into these forms transported from other countries come into play] Possibly unfavourable conditions may come into play, but I doubt from case of Lakes.–
⟨*over*⟩
✏ p462

SA7–10 ⟨*numbered 1–4*⟩
Nouvelles Recherches sur les lois on distribution des formes vegetales Humboldt, Sw Acad Sci 19 Feb 1821.
p.6 Notre imagination est singulerement frappée de la preponderance de certaines q'a cause de leur facile reproduction &cc (would aid no doubt) "Fallacy. There is something quite unknown about social plants. The cause of such cases in the Mangrove is nearly obvious = in pine forests in N. America, which when cut down for few years only bear oaks cactus & Bamboos = in our heaths. I think that it is simply, that there are conditions of some peculiar nature to which only few ♣ species adapted. Yet how comes it that in Northern parts of Europe & N. Zealand Ferns are so preponderant. Where a species is so obviously well adapted & abundant, there seems no tendency to form new species. A species to form new ones, ought to have been widely spaced under different conditions, & not simply numerous under the same, though peculiar conditions
2
||✏ I think this explains the absolute want of relation between abundance in individuals & species of the genus?: it shows that new species not formed by mere chance or laws of simple propagation I suspect the line of succession in making a new family may be this & not branch out till ♣ a new & useful form is formed.
p.9 Generic forms numerous on Mountain summits (– small area)✏ as in Glacial region: there must be a cause
✏ (as in Dark cases, Blind Fauna. as on Coral islands also)
✍ why such peculiar & ill-fitted situations "recoivent des colons d'un grand nombre de genres". ♣ Why do not several ♣ species of same genus become adapted, I think it must be because same spot can support more life under very widely different forms – Take glacial region or dark cases✏ – can support 1 nocturnal 1. diurnal carnivore – one grain-feeder ♣ &c&c (There is something very remarkable in this & very different habits imply generally different genera.(a))
⟨*back of 1*⟩
✏ → On this view the small number on Coral Isld is due to not – suitable conditions, & prob to few arrivals.
⟨*2 again*⟩
p.16 Under a given latitude & in either the old
3
or new world (which in several families have different proportions between the families)
⟨*u*✏⟩ if we know the number for instance of the Leguminosae, we can judge of total phanerogames.
✏ not in Patagonia (Hooker)
⟨*back of 2*⟩
(a) We can understand this in animals & we must suppose something analogous in plants though not intelligible to us.
⟨*3 again*⟩
p.22 The proport. numbers of the great families are the same in Germany & France; hence the species of Leguminosae, Cruciferae & Umbelliferae, which appertain exclusively to Germany, must be replaced by other species of the same families in France. Again France has 1700 or 1800 more species than the German list, & yet their additional number must be proportioned in same manner as whole.
⟨*calculations follow*⟩
✏ All this ought to be advanced as creationist facts
⟨*over*⟩
New species not having been created in Aegypt since Mummies & Pyramids is less result of physical conditions having remained unaltered, than of other organic beings having remained the same.–
4
p.23. Taking even few square leagues near Berlin having only 900 species. Vide last page.
These facts show in most astonishing manner how if a new species has to be created, or more strictly perhaps to be introduced (ie if a gap be left in economy of nature) how it will depend on the character of every other plant in country – (Think of this with respect to animals, whose place in the economy of nature we understand better) The point is to consider what old species could be introduced ♣, their subsequent modification is a separate question.–

Shows how a gap in Nature is a fixed & difficult point
⟨*table of calculations follows concerning proportions of Monocotyledons, Cyperaceae, Compositae and Rutaceae in the equatorial zone of the old and new worlds*⟩
How does this list bear on above remarks does it not invalidate it? Wonderful adaptation of some kind is shown.–
⟨*over*⟩
✏ p466

SA11 ⟨*pp. 980–981*⟩ ❑β
⟨*list of species*⟩ Unknown according to Bentham
SA12 ⟨*pp. 1020–1021*⟩ ❒ℜ ✍
p.1020: The case of Geum – Veronica, Myosotis – go to show that Mediterranean was land during Glacial Period.– as does Mouflon on Sardinia.– & some Alpine plants (in former page) on the Mediterranean islds – Perhaps bears on connection with Abyssinia.– sub-alpine plants on opposite side of Gibraltar – read J Smith? on change of level at Gibraltar
SA13 ⟨*pp. 1078–1079*⟩
Changed habits✍
Decand♦✍ (9.)
Edin. New Phil. Journ. 61/70 fish salt water; Zoologist p.20 do
Quatrefages Unite p79 Goose laying at new time
6. Colin 1/426 animals accustomed to new food; Gard. Chronicle 1841. 291 Cherries vegetating earlier under Heat
SA14 ⟨*pp. 1232–1233*⟩ ❒ℜ ✏
All these tables with under nearly same climate, the similar proportion of great Families impress my mind, very strongly how the existence of every species, depends on fixed laws & relation of organisms.– Especially the latter respect, when we see how considerably different the countries are – It shows too by what laws the creation of new species will be governed.–
The proportion of the great Families in the Atlantic islds, impress strongly my mind as an argument in favour of continuity. Only coral isld (most of which probably at one time have been immersed) shows that different groups only are allowed to live. & seeds from adjoining country wd be in proportion to that country.–
SA15 ⟨*pp.1238–1239*⟩ ❒ℜ ♦
⟨*table concerning Compositae and Leguminosae*⟩
As Legum are generally good sized seeds ♣ I have made out this table of all the islands in foregoing list & it certainly seems very doubtful how far size has anything to do with transport – But then floating; & crops of Birds come into play –
Upon the whole nothing can be inferred from this list

608 *wt/↕w* (a) it might as well be argued that plants do not change under domestication because not perfectly adapted to man's use. De grants complete adaptation is proved not to hold good arguable, & yet argues because there is room left for new species, no change can be effected. On contrary, it might be argued if every country had its species perfectly adapted, then there wd be no cause, or means by selection to change species.– |||– good *1–3m/3u*✍ *"Causes | actuelles", 4–7m/6u "L'adaptation complète", 8–10u "et | ébranlées"/!/w* (a) **609** *2u "passagères | adventives", 30m/30–39w* [The many plants which can live & the few which can propagate, shows that seedlings or life of seedlings the most crucial part of existence] C.D. **610** *34–36m* **611** *1–3m, 12–17m* **613** *38–49m (Boussingault)* **614** *6–10m, 25–30m* **615** *1–3w* Spiders webs Fall of pollen C.D. *15–17m/16u "10 | lieues"* **616** *31–33m, 35–36m* **617** *10–12m/?, 27u "courant | Canaries", 31u "l'est | etc"* **618** *12–15m, 36m* **619** *wt* In MacGillvray even Carrion Crow attacked a flying wounded Grouse *3–5m/4w* (a) *11–12m, 21–24m, 32–36m* **620** *28–35m* **623** *10–12m, 28–30m/30u "transport | légère"* **624** *20–25m, 34–37m* **625** *1–3m/2u "magasin | graines"* **628** *30–36w* Peaches Oranges La Plata Guava in Tahiti **629** *1–2m/1u↔, 15–21m, 23–26w* shows difference of conditions *27–36m* **630** *15–18?, 24–31m/27u "Ce | rarement"* **631** *1–4m, 7–11m, 18–24m/24w*✍ Joy○ **632** *17–18m/w* of irregular distribution *18–22w*♦ I do not see that owing to non-transported *24–29w* very curious details in following pages **633** *27–30m* **634** *14–16m/15u "enclavés dans"/16u "vent | le", 21–25m/←, 31–35m/31u "hypothèse"/33u "autrefois | facile"/35u "accidentelle | disparition"/31–39w* Only one fact for this hypothesis *37–39m, 40u "à | certaines"/wb* What an hypothesis **635** *wt* If herons eat fish with seed, such means wd have been more energetic formerly, when country wild.– *1–5u±/19–22m/→/2–7w* less time equally good theory *9–10m* **636** *9–10m* **645** *wt* p.703 He excludes plants growing only in cultivated ground, very correct. *3–10m/w* Big type certainly not. **687** *1–3m* **698** *9u "satisfaisant | probabilité", 11u "quatre-vingt-trois"/w* 83 *12u "avant | siècle", 15u "10 venant"/w* 10/83 Amer *26–28m, 31–33m* **701** *wt* (b) England formerly

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connected, hence most plants which could live in England wd have immigrated. If any species had been introduced by Birds within the last century, & was not mentioned by old Books, it wd have been thought to have been overlooked.– *30–37m/w* (b) (a) So very recent since 1700 *wb* (a) But is there not some arguing in circle for it is the very probability of being introduced by some one chief argument **702** *20–25m, 26–27m, 27–28m/!, 33–34m/!* **703** *6u "55", 6u "en 1724", 12–13m, 39–40m* **704** *6m, 7–20m, 26u "trois mille"/w* Cent? *27–31m/30–35w* How can this be told – look at connections, before any ancient Floras *31u "alpine | aquatique"* **705** *7u "manque | exactes"/6–8w* this shows the means he uses **706** *8–9m, 36–38m* **707** *5–8m, 16–18m/w* shows conditions *19–22m/w* proves too much *24–26m* **708** *1–3m, 8–13m, 17–21m, 32–35m, 36–40w* even in same country difficult **709** *wt* (a) if all true, either doubt creations, or new isld do not form; but new isld do not form.– *3–6m/w* by wind or animals *11u "devaient | rares"/w* (a) *17w* These are only a few of the best cases **711** *2m/u "1629" "1623", 5–8w* age of early good Floras *9–10m/10u "p. | 1627", 37m/u* **716** *22–27w* in 26 years 600 miles of Latitude Ch. 5 **718** *28–33m* **719** *12–13m/13u "quatre | après"/w* Ch. 5 *18–19m, 23m, 26–27m, 29–30m*◆ **720** *17–22m/19–20u "ne | Montevideo", 27–28m, 32–38m* **721** *4–5m/3–9w* Falkland Isd Azores? Canary Isld How many (See next Page) *7u "le | ordinaire", 18–22m, 30–35m* **722** *9–18m, 21–23m/22u "espèces | naturalisées", 24–28m, 29–32m, 38–39m (Hooker)* **726** *25m, 30–31m* **731** *7–11m/w* on account of Hybrids.– Ch. 9. *18u "la | résolue", 19–20u*↔ **732** *17–18m/18u "de 1857", 19–20m/u*↔, *42m/u "les | comme", 48u*↔ **733** *1–4m/1u*↔*/3–4u*↔*/1–4w* what does Bromfield say on this? *40–42m/41u "c'est | blanche"* **734** *7–15m, 16–17u "appuient | vue", 20–24m, 30–32m/33m, 37u "que | Stramonium"* **742** *6–9m/8u "64 espèces", 17–19m, 30m/u "grand"* **743** *38–40m* **744** *1–5m, 6–8m/7u "18 | siècle", 19w* (1) *20w* (2) *18–24w* I think this Law wonderful; but not applicable (?) to island.– *25w* (6) *29–30m, 31–36m/w* These introduced species are wide rangers in their own countries. **745** *9–11u*↔, *12–14m/w* Q6 **746** *18–21m* **750** *14–17m* **751** *23–31m* **754** *34–36m/35u "à 184"/37u "172 | 12"* **755** *16w* 35:172 *18–20m, 35–36m* **757** *8–10m, 22–25m* **758** *6u "184", 7–12m, 30–33m* **759** *17–22m, 34–37m, 39–40m*/Q **760** *1u "56 | nouveaux"/2u "Parmi | sont"/1–3*Q *30–34m* **761** *1–4m, 23m* **762** *3–4u "l'ancien | monde", 6–9m/6–7u "aux | sont", 9u "très | inconnue"/w* This may be natural *15–16u*↔*/18?* **763** *26u "les courants", 28–36m/30–33w* currents from Africa to America & reverse **764** *20–25w* Current of Pacific from Hooker *38u "de | l'ouest"/39u "dirige | Sandwich"/wb* But as trees come to Carolines **765** *7–15m/9w* currents *19–21m, 23u*↔ **766** *5–8m, 15w* The Disjointed Species appear in further list, where there is no good evidence of true partition **769** *14–16m/13–21w* I see he admits often hooks are powerful agents of dispersion. **773** *4–9w* Rhizophora on 2 sides of America **774** *23–25m, 26u "peu | genre"/25–28m* **796** *8–10m/10u "et | Océan"/8–22w* opposed to my idea of storms. But so few & agency of man so difficult to eliminate, that the case is not important. *19–21m/21u "est | égard"/23–38w* All this shows that sea is a very effectual Barrier, when wide. How then islands in open ocean. Wind from isld to isld?– *28u "était | tropicale", 30–31m* **797** *10–11m/11u, 13–15m/12–17w* makes the case of such plants, peculiar to Isld, the more striking.– *17–22m/*→*/wb* This often mentioned before & shows truth of rule, that when a plant ranges widely, it can range very widely Ch. 7. Acclimatisation **798** *3–4m, 11–15m, 18–21m/w* not on islds *31–32m* **799** *1–7m, 33–38m/*→ **800** *30–34m/w* so could live **801** *wt/1–15w* Could I get list of Naturalised Plants from Lowe for Madeira; for Canaries – Webb & Berthelot; for Azores St. Helena. Sleeman – Watson: it in his publishO lists Bojer has done it for Mauritius.– This cd be important as showing means of distribution & as showing inhabitants of islands not well adapted. **802** *4–5m, 16–18m/w* already disseminated **803** *28m/28–29u*↔/Q **804** *wt* I fancy the Compositae agree with my law that Compositae have as class narrow range, & few the species of range widely. No, my law was that when the species range widely the class ranges widely. But plants will not serve. Except so far how species range narrowly & I fancy genera range narrowly. *3–6m/5w* (a) *27–32m/w* time, time (a) he argues for 2 or 300 years last 100 only known at all well.– *wb* The Azores has 100?? European plants, if 1 transported in 1000 years then 1000 wd get in a hundred thousand years.– Who will pretend to think ♣ real species has existed, so short a time? **805** *23–28m/20–25w* Bears most importantly on origin of cultivated species *29–30u*↔ **806** *9–10u*↔, *17–25m, 24–25u "le | encore", 40m/u "Il | espèce"* **807** *21–27m, 29–33m* **809** *18–21m, 24–28m* **810** ||✎/wt N.B. Most domestic animals & Plants can withstand most diversified climate, & therefore (like accidentally transported plants) they have probably wide range & therefore are very unlikely to have become extinct or be unknown. *1–5w* Mosses only. Animals accidentally transported by man. *4–7m/1–5w* Generally conspicuous ♣ & certainly useful. xxx *6–11w*♦ Shows that are becoming extinct belong to small broken genera.– This not *15w* (Good to compare all this with Bentham's article) *20–24m, wb* xxx Might say probably not <u>local</u> species **811** → *⟨from p. 810⟩/wt* I suspect it will appear for Decandolle that the originals have not <u>wide</u> ranges; but I suspect Decandolle in the following discussion.– To make this argument perfect, they ought to run wild. Nor fowls & Fancy Pigeons do not run wild. **815** *19–27m* **826** *9–13m, 15–17m, 23–25m* **827** *4–7m, 8m, 20u "combien | par"/20–24m/w* not selected except size & colour of root *32–33m/33u "pendant | altérées"* **831** *38–40m* **832** *1m, 4–6m, 11–14m* **835** *5–8m* **836** *13–15m, 18–19m* **838** *2–5m* **840** *1–7m, 15–19m/19u "estimés généralement", 20–21m/21u "origines | Choux", 26–27m* **842** *12–16m/w* yet all cross – must be created in Hybrid Chapter. *22–24m, 26–31m/27–28u "de | oleracea"/26–35w* Here comes in argument ♣ as in dogs, that reputed parents are closer than variations *32–36m/36u "Systema"/?* **843** *27–34m* **844** *3–11m* **848** *20–25m, 27–31w* See in Gartner about fertility. Nothing – *34–38w* Not known wild positively – *wb* Hence not likely that the numerous varieties shd have each wild prototype **849** *9–12m, 16–17w* Not known positively wild **850** *7–19w* The fertility of the N. chinensis being American bears on the vars. in China (not known wild there) **854** *wt/1–18w* I shd remember that ♣ edible vegetables may be killed out by being eat up.– in times of famine at least annuals. but then seeds in ground, as Decandolle remarks. But annuals do not appear in winter time during famines – **857** *13–15m/13u↔* **863** *34m/w* Citron *35–39m/36u "d'espèce | celle", 40–42m* **864** *21m/u↔, 29–30m* **865** *5–6m/u/w* (2) *12–14m/13–14u↔, 28–32m/28w* (3) **866** *33–38m, 41–44m* **867** *19–21m/19w* bitter orange **868** *8–13m* **869** *22–23m/22w* Sweet orange *30–36m, 37–38m/w* –shows how he believes in hereditariness *39–40m* **870** *6w* 4 *10m, 15–21m, 22–24w* Sp. ? 6 *24–25m, 26–27m* **871** *4–6m, 11–12m, 28–29m/29u "Bergamotte", 30–34m, 35–37m* **872** *18w* & Crimea *21–22m, 23–24m, 25–27m, 32–34m, 40–42m* **873** *wt/1–3w* I daresay wild ● Secy – Boucher de Perthes in same Library. Hort. Soc. Agricult Soc., Antiq. Soc. *4–6m/5u "Reynier"/4–6w* Worth reading for Cattle &c **875** *16–19m/17u "multitude | ces"* **876** *12–18m, 29–33m, 34–36m/w* Flora Jamaicae? *37–38m/36–40w* good case for no doubt an eastern Plant **877** *2–3m, 3–4w* Poor *3–5m, 6–7m, 10–15m, 23–24m, 26–27m/26u "plusieurs espèces"* **878** *20–21m, 27–30m, 34m* **879** *37–40m/38–39u "faveur | sûr"/39–40w/wb* Hence probably derived from single species **880** *10–12m* **881** *4–9m, 30u "Malum | ils"/29–31m* **882** *6–7x✎/u✎ "hort | 121", 11–14m, 15–18m/16u "Théophraste | avant"* **883** *35–37m✎/x✎* **884** *3–8m/x✎* **885** *3–7m/x✎, 13–15m, 22u "en 1857"/22–25m, 27m/x✎* **886** *11–12m/12u "S'il | espèces"/1–31w/wt* There is strong difference in Laburnum & Orange? & apple cases the tree goes on producing separate fruit & blended fruit. But this case (together with several stones of seed) makes Peach & Nectarine different far more analogy with Sports. In Laburnum○ case it is not <u>pure</u> yellow which produces pure purple; it is a mixed tree.– *19–22m, 30–35m/w* Peaches & Nectarines *35–46m/w/wb* I shall have to read all Gartner on this subject *⇑9–1m, ⇑6u✎ "Journ"/⇑5u✎ "V"/⇑2u✎ "1851 | 299"/⇑3–1m✎* **887** *11–14m/x✎, 17–21m, 35–40m* **888** *23–25m, 26–32m* **889** *24–27m, 33–35m, wb* Great cause of doubt in fruit trees is escaped seedlings **891** *1–2m* **897** *16–20m* **902** *27–31m* **910** *⇑12–9m/⇑19–6w* (In Loudon good account.) confined range. Probably single origin. good to point out amount of variation. *⇑13–11m/⇑9–7m✎* **911** *1–4m, 14–15m/11–14w* This good as well as gooseberry *⇑14u "1557", ⇑12u "1597"* **918** *20–21m, 35–37m* **919** *25–26m* **920** *4–6m/4–8w* Forster must be read again **921** *32–34m* **922** *1–7m* **923** *7–9m, 15–16m, 37–40w* Mem Schomburgk in Guyana **925** *24–30m* **926** *4–9m* **928** *4–7m (Lindley), 12–13m, 16–18m/17–18u↔, 21–26m, 26–31m, 35–37m/w* Read **929** *1–3m, 5–6m, 8–12m/9u "150 | froment", 15–24m/17x✎/15w* old vars *28–33m/28–29m/26–32w* Does not stigma & anthers with pollen protrude what for if not for external fecundation in fine weather. *30–31x✎, 35–37m, 39–40m* **930** *1–10m/4–5x✎/↕w* ? see the accounts of Australian savages how they try everything – Look at Carrot, Parsnip. Gooseberry – I am sure I have read somewhere of savages getting grass seeds.– Zizania aquatic (?) in N. America How large. *10–16m/10–11x✎, 17–21m/w* yet do not run wild.– *25–26m/x✎/26–27u "non | changé"/27–29m* **931** *4u✎ "2822"/x✎* **932** *10–18w* Only 1 of the 4 species found on any good evidence wild.– So that at least the 200 or 300 sub-vars cannot have wild aboriginals *16–21m, 22–25m/20–26w* I doubt whether language can be trusted? so far as he does. *25–31m/w* It is clear that one arrives at maximum ⇑*3–1m* **933** *4–6m, 7–8m, 15–16u* ↔, *32m, 39–40m/39u "Bull.|66"/x*✎*/w* I have read this **934** *16–24m, 38–40m* **935** *5–6m, 12u "hexastichon"/13u "distichon"/14u "vulgare", 11–13x/w*✎ 3 sp. *23–24x*✎*/24–26m, 28–30m, 33–34m, wb* The more I reflect the more I come to conclusion that antiquity of man one of the most important elements in history of variaton.– **936** *wt*♦, *17–18x*✎*/18u "l'Hordeum distichon"/18–20m/w* 1 or 2/4 f. apparently wild.– *21–24m, 31–34m, wb* Lindley or Loudon makes probably only one species of Rye **937** *19u "Econ. Eg."* **938** ⇑*10–3m,* ⇑*2–1m* **939** *6–7m, 15–16m, 34–38m* **940** *12–17m, 30–31x*✎*/m,* ⇑*2–1m* **941** *15–17m, 35–37m* **942** *18–21m, 22–23u* ↔, *28u* ↔, *31–32x*✎, ⇑*3–1m/w* see about European vars. **948** ⇑*9–6m* **950** *5–7m,* ⇑*7x*✎*/*⇑*6u "avait|considérable"/*⇑*5u "aujourd'hui|nouveau",* ⇑*5–4m,* ⇑*4–2m,* ⇑*15–1w* Did I not find it in elevated deposit? **951** *10m, 13x/15x*✎*/11–18m, 19m,* ⇑*15–14m,* ⇑*12m,* ⇑*11–8m,* ⇑*4–1m* **952** *15–19m* **956** *10–11m* **957** *36–37m* **960** *19–22m/20u "localité|auteur"* **961** *25–27m* **962** *1–4m, 18–21m* **966** *10–15m* **969** *20–21m/21–22u "grande|Rouge"* **980** *4–6m, 18–20m* **981** *table.m/w ⟨notes Bentham's opinions as to wildness, affinities and principal locations of species listed; so also pp. 982, 983⟩* **982** *wt* Plants not mentioned by Decandolle Celery – (Medlar known wild) Cynara carduncululus (Pistachio nut origin unknown) Ane◗ or Fennel Asparagus Atriplex Isalis lin◗ & Ricinus Castor-oil Plants (origin doubtful) **983** *1–3m, 4–7m ⟨in text below table⟩* **984** *21–23m, 25–28m, 29–34m/30u "157", 34–35u "21|85"/35–40w* omit in my calculation, though several authors, I think, wd not put in the 85 **985** *2u "32|aient", 9–10m, 11–14m/12u*↔*/11–18w* comparatively modern. ∴ this which at first appears a very important original is not so important.– *14–15u*✎ *"dans|connus"/m*✎, *20–27m,* ⇑*3–1x*✎*/*⇑*6–4u* ↔*/??/*⇑*12–1m/*⇑*11–8w* against creation for man? **986a** *5m/?, 9m/?, 14m/?, 18m/?* **986b** *5m/?, 12m, 13m, 19m, 20m* **987** *1–4m/wt/1–6w* Celery not cultivated in Tierra del Fuego Potatoes not south of Chile. because not being civilised for culture No S. America, but Incas far enough & long civilised. **988** *1–2w* But I think ground cultivated in La Plata when discovered *4–10w* How many of these cultivated along Cordillera – Look to this. *9w* Tomato ⇑*4–1m* **989** *1m/w* This all used *3–4m, 6–8m, 10–14m/w* exactly the same as in Pigeons *15u "XVIe", 16m/16u "choux|courges", 19–22u±/21m/15–21m/w* but no evidence that have not reappeared *23–27m, 27–29m, 29–37m* **990** *5–9m/7x/wt* x He seems to have overlooked the indirect effects *1–2m, 3–4??, 15–21m/w* But this all implies such perfect communication *28–34m/28–29u "ou|communication"/27–37w* Here he admits faulty communication. This argument equally applicable to var. arriving in one country *31u "si|autre"/32a "spontanément"* in same country ⇑*5–1m* **991** *6–8m/?, 16–17u "Quand|agriculture"/14–24w* ! How can he pretend he knows origins of agriculture.– (Celts are thought to be agricult.lists) ⇑*7–1m/w* How can he tell no change.– No ♣ selection **992** *1m, 3–7m/4w* quote *8–16w* So when one attends to any species, instantly one begins to get new varieties.– *14–15m/u "seulement|origines"* **993** *18–20u "examiné|transport"/!, 24–25m* **994** *20u "occupé"/19–20m/w* forgets wild *23–26w* In Keeling Isld some larger fruited trees **995** *7u "en Sardaigne"/5–7w* So Decandolle thinks these species distinct *21m, 23–24m, 26–27m, 32–33m/32u "Quercus Suber", 33u "il|Madère"* **996** *1–4m, 10–11m, 19–20m/17–22w* Pigeons might transport Beech most or Oaks ⇑*6–1m* **997** *14u "Bourbon|Maurice"/13–15w* ? How if not Fact? *13–15m/13–25w* I think there must have been some great subsidence here.– I might ask Maury about soundings between Mauritius & Bourbon. *26–27w* wingless Birds **998** *4u "Bourbon, Maurice", 22–25w* He does not bring in depths.– **999** *wt* I think soon after Glacial epoch, country with more lakes, like Finland?? *16u "en Abyssinie"/17m, 21–23m, 28–30m/29u "flottent|germination", 33–36m/36u "aux|Shetland"* **1000** *8–9m/9u "à l'île", 14–15m, 18–19m, 14–25m* **1001** *3u "en Lithuanie", 6–7u "nord|Italie", 17u "La|du", 24–28m/24w* Extinction *31w* Extinction *34u "dans|méridionale", 39u "en Algérie"* **1002** *1u "au|Espérance", 2u "dans|Amérique", 34–35m* **1003** *wt* Sea breaks with F.W. lagoons often bordering coasts.– *1–2m/w* Extinction? *7w* Extinction (?) *19–21m, 29–31m, 37–38m* **1004** *10–13m/w* wd surely stick on birds *22–25m, 32u "mûrit|de"/31–34m/w* Birds pick up ⇑*2–1m* **1005** *15–17m, 20–21m, 23–25m, 29–33w* must conclude belong to causes geological or anterior ⇑*8–1m* **1006** *1–4m/2–3u "l'autre|montagnes", 10u "d'immenses"/11m, 23–24m, 27u "première hypothèse", 28–29m/28u "chaque|espèce"* **1007** *5–8m, 8–11w* D.C. speaks of 300 leagues = 15° Lat. *12–13w*♦ nearly 20° between Lapland & Switzerland. *17–18m/w* Hence 108+18/685 not altered since glacial epoch *23u "purement"/22–24m/w* I do not understand whether these 124 exclude the Swiss *26u "arctico-alpines"/26–27m* **1008** *wt* (It being only genera & not species in common on Borneo & Australia, is a difficulty.–) *wt* Not one of these is Atlantic isld. *10u "au Caucase", 17u "Carinthie"/w* where *22u "variété d'Amérique"/w* Extinction ⇑*2u "monts | centraux"* **1009** *13–15m/13–19w* this shows I think, former land transport & not by icebergs *32u "Corse"* **1010** *24u "Sierra-Nevada"* **1012** *2–4m/3u "arctico-alpines", 15–16m/15u "3 | lieues", 22–23u↔/19–26w* This seems to me to presume that we know the causes of struggle far better than we do.– *26–29w*♦ Elsewhere far less of these *30–36w* mountains & therefore probably other species take their place ⇑*4m* **1013** *1–2m/wt* of course for implies first wide extension. *5–9m, 14–16m, 28–29m/29u "les | Abyssinie"/30w* There are mountains in Ab of 10,000 ft *wb* Are there many genera in common between Abyssinia & Europe not fd in intermediate country? **1014** *14u "Sinaï"*, ⇑*3–1m* **1015** *1–2m, 7–8m, 16–17m, 24–28m, 29–33m, 34–36m/w* my facts go only to genera.– **1016** *1–7m, 18u "aux | pieds"/19u "dans | montagnes"/20–25w* This must have been imported during glacial period (a) *28u "Abyssinie | pieds", 31–32m, 37m/w* extinction *38–40m/w* since glacial ⇑*1m/u "aux | hauteurs"/w* (There are also alpine insects *wb* (a) This good argument against connection by land or if land connection a very long one for cold & warm plants, so plenty of time for immigration of everything which○ cd immigrate us land quadrupeds.– **1017** *1–4w* Mem: if seeds transported by icebergs ♣ it wd be irregular.– *5u "Sommités"/5–6m/w* extinction since glacial *8–9m/w* extinction *11u "montagnes"/10–11m/w* extinction since glacial (?) *16–17w* Extinction since glacial. *24m, 30–36w* one of the species which has transmitted down Andes crossing by Behring Straits ⇑*6–5w* extinction since glacial **1018** *4–7m, 9–10u "L'identité | quoique"/?!, 14–16m/w* extinction since glacial *24–29m,* ⇑*4–1m/*⇑*2u "déposé | impalpables"* **1019** *13–17m* **1020** *wt* The fewness of these cases show how usually habitat continuous *3–10w* Spain & Greece & Palestine. Extinction *15–19m/w* alpine in Spain & Taurus *22–23w* Extinction *26–27w* extinction *32–33w* extinction *36w* extinction *39m/w* extinction *41m/w* extinction *44u/45m/w* partly alpine *wb* Those with x seem most likely to have been separated by extinction, but they do not seem very good cases or worth calculating for extinction.– ⟨*x against Minuartia dichotoma, Viscum cruciatum, Solanum persicum*⟩ **1021** *wt* All these 16 cases are Spain of Western portion of Mediterranean *2w* some extinction? *6x, 8–9u "sur | 6500", 12x/w* do *15m/x, 21u "habitant | sablonneux", 27m/w* true *29–30u↔/28–37w* Depth not excessive Now the islds in Mediterranean are not simply volcanic isd I think, but fragments of other rocks. See Map of Europe *39u*♠*/39–41w* species of Atlantic isld. *38a "p."* none mentioned./ mentioned at p.1016 **1022** *2–8m/w* After giving Spain & W. Mediterranean Give Spain & Ireland.– *7u "car | montagnes"/3–8w* During glacial period by Rennells current.– hence might have travelled by land during glacial period. *10–12m/w* Great Genus *10–11w* See S. America *13–14m, 20–22m/16–22w* has only 3 species Decandolle makes a Family: Lindley a sub-family.– with 5 genera *25m/23w* Great Genus *27u "à | famille", 30u "des | Népaul", 28–29w* Extinction ⇑*10–1w/wb* Genus of 3 species Saurureae Rich., Alismaceae Rich. (so I suppose very peculiar) genera. Lindley gives only 4 genera to Saururaceae. It really might be worth while to work out the Spanish cases. No not worth.– ⇑*4u "Etats | ou"/w* this refers to these 2 last cases entirely dying groups. **1023** *1–4m, 5–7m/w* He always leaves out struggle with other species.– *9–12w* a great genus: Lindley 9 genera in Eriocaulaceae *22u/21–24w* Decandolle puts genus in the Family *28–30m* **1024** *wt* F. Water habitats not being well stocked less likely to become extinct.– *1–2m, 3–4m, 7u "la | Eriocaulon"/7–9m, 10–13m, 19u "mais | quantité"/14–20w* Large genus not small sub-fam in Lindley.– (now thought peculiar species?) ⇑*12–19m* **1025** *4–5u↔, 12–13u "dirai | impossible", 28u "sigue | les"* **1026** *14?, 28?* **1027** *1?, 40–42m* **1028** *10–11m/10u "Lieux humides", 19?, 26u "Lieux humides"/?, 32?* **1029** *wt/*↕*w* If these are transported accidentally what hundreds of thousands of genera requisite.– May one speculate on excessive antiquity of F.W. Plants.– Continents were all once united theoretically.– It seems most improbable that the great laws of Creation shd be different for simple elements of aquatic Plants.– Is there any geological evidence of Water Plants being older? There is something in relation to land & F.W. Mollusca, I think; Morris would know. ?The genera of F. W. Molluscs are most ancient *3u "Il | humides", 5–6u "les | humides", 10u "Lieux humides", 31u "terrains humides", 35u "les | humides"* **1030** *3u "montagnes | Indes", 4u "montagnes | intertropicales", 12–13u "même | 20°"/14–15u "où | Antilles"/11–14w* Ischia Volcano **1032**

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13u "humides", 18u "graines", 21u "humides", 34u "humides", 37u↔, 39u "prés humides" **1033** *4u "Lieux humides", 10–15w* I see one Dicliptera in Keeling Flora *22–25m, ⇑3–2m* **1034** *17–18m/→/19–21m/w* why if creation. **1035** *6u "endroits marécageux", 8–10m, 12–17m/w* small genus Lindley small Sub-Fam. & put it with (?) in another small Fam. *26–30m, 33–41m* **1036** *1–3m, 4–6m/w* Double creation. subsidence in Pacific *10–12m/9–19w* either on coming or on going off of glacial period: species might have travelled by Arabia &c Canaries Isld 180 miles from Africa.– *20u "à | Mariannes"/21–24m/23–24u↔/xx/w* Primulaceae; moderate Family *34m, 36u "sont | Mascareinhes", 39–40m, wb* good to compare list of Mauritius & Bourbon to see difference like difference in Galapagos &c **1037** *9–11m, 15–17m, 22m♦, 27–28w* Supplemental list *30–32w* These seem all less certain.– **1038** *17u ↔* **1039** *11–12m, 23–25m* **1047** *1–2m, 4u "il | monocotylédons", 5–6m, 9–10m, 11–14m, 15–18[...], 19–20[...], 20[...], 21–22m, 21u "être | hygrophiles", 25m, 27m, 28–35m, 39u "des | existes", 40–41m* **1048** *20–25m, 35–37m, 38–40m* **1049** *21–22u "Pour | Maloiunes"/w* Var. of islds *35–48m/48u "sept. parte"* **1050** *3–8m, 9–12m/12u "Il | lithosperm", 22–28m, 30–31m, 33w* Arabia *34–35m, 39u "Lieux humides", 48u "sericea | peine"* **1051** *1–2m/2u "Les | maritimes", 2u "Lieux humides", 6–7m, 19–20m, 31–35m* **1052** *2–6m, 33–40m* **1054** *8–23w* There is something very odd in Family resemblance with Cape: quite beyond speculation.– *⟨u henceforth place-names⟩ 8u, 11u, 12u, 14–15m, 16u, 22u, 23u, 24–25m, 27u/28u/26–29m/w* cirripede in this predicament *30–31u, 31u, 33u/33–36m/34u, 38–40m, 43u, 45u, wb* How little is known: power of floating & duration of vitality in salt-water **1055** *1m/u, 14u, 15u, 16u, 29–30m, 42–44m* **1056** *1–3m, 4–12m/10–16w* The separation of areas depends entirely on anterior causes? ie no means of present for transport. **1057** *12–16m, 25–27m, 31–34m, 35–37m* **1058** *7–18m, 23–26m, 28–31m/32–34w* Does not mention small number on islands. *⇑8–5m, ⇑4–1m/w* If we cd believe in antiquity greater, this wd be explained.– **1059** *3–7m/5w* (a), *wt* (a) If I remember right, Compositae wider range in Europe & Siberia than at Cape – if so formed into distinct species in latter.– **1060** *3–7m/w* Gerligg wd give opposite presumption *20–35m/w* oh! oh! Look to shells analogous formations. East & West N. & S. America.– India.– not exactly contemporaneous **1062** *⇑16m, wb* He looks at extinction as due all to Deluges &c!!! **1063** *29–31m, 32–39m* **1064** *1–14m, 14–20m, 23–24m, 38m/w ⟨FD⟩, 40–41m* **1066** *39–41m (Unger)* **1067** *wt* Lyell refers to Murchisons Paper on Alps *4u "pliocènes d'Oeningen"/w* Oeningen. *9–14m, 15–19m/!!!, 27m, 31–34m* **1069** *4–7m/5w♦/u "mais insuffisante", 15u "la | manque"/16–17m, 26–27u "prennent | importance"/28–29m* **1070** *21–24m, 25–28m, 29–32m* **1071** *7–17m/10w* See next Page *18–21m, 25–29m, 30–35m, 40u "ville, village"* **1072** *24u "nous | époque", 24u "avec | données"/24–32w* Not one of these characters agrees with primrose & Cowslip *26–40m/w* The definition; but practically, & as far as my subject is concerned descent & creation come into play. *33u "positivement | commune"/wb* Here creation comes into play No **1074** *14–17m* **1075** *12u "zoologistes", 18m/u ↔, 23–25m, 32–33m* **1076** *9–10m/10u "la | commune", 19–22m, 28–31m, 28–31!/29–34m, 34–35m/35u "pollen | bouton"/?, 37m/u "quod | creatae"* **1077** *3u "hybrides"/w* oh *4–6u "et | qu'on"/5–9m/6–9m/8–9u↔, 11–12u↔/w* So he wd not argue from quadrupeds *19u "la | succession", 34–35u "Ainsi | seulement"/35–36m/w* even in Hybrids **1078** *wt* there is no separation between domesticated & wild variation *6–8m, 10u "variations | races", 15–18m/15u "On | même"/16u "années"/14–31w* variations are fleeting changes in Individual: Probably answering to ♣ (shell in brackish water) size in animal and wool – or blackness in Bird fed by Hemp seed *29–30m, 33–34m, 37m* **1079** *1–2m, 6–9m, 12–13m, 18–20m/w* not hereditary *21u "perdent | toujours", ⇑3m, ⇑4–2w* Horse-Chesnut origin known. **1080** *19u "à | multiples", 18–20m, 26–27u "variations | variétés"/26–29m/w* ie can be propagated by grafts. *30–38m* **1081** *wt* If this cd be trusted, it wd be very important.– *1–6m/1–4w* Chance seedling surely must have been raised?? *5u "jamais | semis", 14–23m, 31–33m* **1082** *7–13m, 25–26m, 30u "asperges"/w* asparagus *34–37m/w* Race = sub-species **1083** *1m/x, 2–4*Q *8–14m/9–10*Q *16–21m/17u "pourpre"/x/20–21*Q *21–24m, 24–29m/26w* any crossing? *34–36m* **1084** *20–23m/w* very good & new *38–40m* **1085** *8u "curieuse | rarement", 17–20m/20w* only requires selection. *21–23m, 25u "est | dans", 30–31u↔, 32–33u "imparfaits | borné", 34–35m* **1086** *7–13m/7–20w* For my view I do not want races, only more variability: these introduced plants are excellently adapted, for they hold their ground in a well stocked country. *19–24m/19u "conditions | tendent", 24u "depuis | siècles"/22–25w* because adjoining continent stocked *27u "cette chimère"/28–30u↔/25–30m/w* Azores plants. Himalaya

Rhododendron Ceylon Plants. ⇑*7–4m, wb* The Kidney Bean objection goes for nothing; those who bring it, seem to think that climate acts on all: it is selection & we know not that colder climate has anything to do with production of hardiest varieties, yet I believe climate does gradually harden plants **1087** *3–6m, 23–30m,* ⇑*2u "influence du climat"/wb* (always this) He has not the Key.– **1088** *5–6m, 7–12m, 33–35m* **1089** *16–20m/15–16w* Bears on old glacial period *25–31m/25–35w* I suppose he means they wd not have been created not to extend for they cd not have extended, owing to their isolation.– **1090** *1m/?, 8–9m, 25–30m, 36–37m, 38–39m* **1091** *6–8m, 11u "c'est | cultivé"* **1092** *12–17m, 20–23m/w* Shows not shadow of evidence in shells !! **1093** *10–16w* not isolation in case of trees; many species in same island.– *18–22m, 25–32m/26–27u "distinctes | autre", 38–40m* **1094** *7–8m, 10–13m, 14–24m, 34–37m, 39–40m* **1095** *10–13m, 16–19m, 29–32m, 33–35m, 37–40m/w* same argument as Cuvier about Dogs ⇑*5m/wb* but many think these are only varieties **1096** *wt* (a) It must be most rare, when species gets isolated & sports suddenly: I shd think favourable but diverse conditions (referring chiefly to other co-organisms) but numbers in the sport not great.– *5–6m, 8–10m, 11–18m/w* In fact he here follows man's method of selection too servilely.– *14–18m/!, 19–22m/w* islands *20–25w* (a) Isolation chiefly requisite to get new conditions. *23–30m, 32–34m/32–33u*↔ **1097** *1–3m/w* This necessary for if contrary was rule, they cd not have descended.– *4–6m, 6–10w* (a) (Antelopes same case at Cape) *9–14m/12–13u "cause | naturelle"/10w* Selection *17–24m/14–21w* This exactly the reverse argument of old Decandolle about Araucaria ⇑*14w* Yet in Compositae we have case of Centaurea in H◗ Hieracium & ⇑*21–1w* Get Watson to give some particulars about Hieracium: see in marked list, how many doubtful vars. ⇑*8–1m/* ⇑*12–3w* What is Henslow composite plant which has a palustr species or ♣ Kierecium. ⟨*he means Hieracium*⟩, *wb* (a) Elevation slow ♣ subsidence. every continent has been many times divided into islands. **1098** *7–8m/8u "isolement"/7–11w* ie avoiding crosses.– yet he says many are impregnated in bud.– *9–12m/!!* **1099** *24–26m, 32–38m/35–38w* always overlooks selection.– **1100** *2–6m, 7–8m, 16–18m, 31–33m, 39–40m* **1101** *10–14m, 22–31m/27–28w* Well stocked countries *34w* (time) *36–38m, 39m* **1102** *6–17m, 20–30w* I do not see any good in discussing this hypothesis.– There is so little analogy in a plant taken suddenly *29–30m/w* false ⇑*10–2m/!?* **1103** *22–23m, 29–39m* **1104** *24–31m, 32–37m* **1105** *6–8m* **1110** *36–40m* **1111** *wt* (a) Those geologists, chiefly continental, who believe that species all destroyed by catastrophe, upset the whole theory.– *5w* (a) *30–33m/w* just like shells, with increasing knowledge all upset. *34–37m* **1112** *2–5w* Mem. India & Africa *35–37m* **1113** *2m/3–5m/1–9w* Mem. how little is known about Chalk. Hooker is much opposed.– It is like arguing about Mammifers.– **1114** *3–8m, 21–26m* **1116** *1–5m, 17–22m, 24–27m* **1117** *18–20m, 29–32m/33–35m/28–40w* All this agrees with my theory, but I confess I do not see much weight to argument concerning facts of introduction accidental. **1119** *1–4m* **1121** *21–25m/25u*↔ **1124** *1–5m/?/wt* This shows how little he appreciates real antiquity of world.– *27–31m* **1125** *9–12m, 18–21m* **1126** *27–28m* **1127** *14–21m, 27–30m* **1128** *2–6m, 16–22m* **1129** *1–2m/2u "complète", 11m, 18m* **1130** *wt* Glacial Th. *3–4m/w* Ask *9–13m* **1131** *3–4m/3u "individus | faits"/2–8w* ie you may have many species & few individuals; or reverse.– *11–13m, 15–20m, 22–23m* **1132** *8–10m, 13–15m, 16–18m, 21–23m, 22–24m, 26m, 29–30m, 31–32m/31u "Les | dispersés", 32u "plus rares", 39–40m* **1133** *wt* Are these aberrant genera? *1–2m, 4–6m/6u "et | Brésil"/4–7w* small genus with wide range, & species itself wide ranger. *9w* cold period *14–16m, 21–23m/22–23m*✎, *24–25m, 30–32m/26–40w/wb* opposed to my doctrine but how little we know of agglomeration of individuals – The number of species will always depend on anterior causes, of individuals or actually existing causes.– ⇑*4–1m/wb* Yet as far as H.C. Watson's Cybele goes, it wd appear so.– **1134** *3–7m, 8–12m, 18–22m/w* on the number of genera in a region.– *27–29m* **1135** *1–8m* **1136** *table.w* but here comes in old cause of doubts that regions, not divided according to apparent obstacles of transport. *7–8m*♦ **1138** *1–5m, 7–11m/12–16m/7–18w* a good proof that with wide diffusion differences supervene – all showing slow transport.– ⇑*15–9m,* ⇑*4–3u "la | régulière"* **1139** *1–3m/w* General conclusion *21–23m, 24–27m/24–39w* see next Page So that perhaps (he admits) it is only in the less large genera (ie growing genera) that extension of ♣ one of species affects course of genus **1140** *3–6m, 10–11m, 17–26m, 28u* **1141** *18–19m, 22–30m* **1142** ⇑*13–12m/→/1–14w* area of genus thrice size of species .X ♣ X Perhaps really six times as great as species **1143** *4–6m/w* How little he understands extinction. *16u "isolement", 17–*

1143 *19m, 33–35m/34u "un|près"* **1144** *27–29m* **1145** *14–17m* **1146** *6–10m, 11–15m* **1147** *31–32m* **1149** *24–30m/25u↔/28u "n'est|océan", 38–40m* **1150** *23–24m, 25–26m* **1151** *8–10m/w* This like species of a genus *19–21m, 27–31m, 35u "qui|Fissenia"/36u "doit|rapporté"/ 34–35w* seems abnormal genus **1152** *wt* In Steudel Bontia put in many Families *3u "à l'extrémité"/w* small Fam. *6u "Bontia"/5–8w* Is Bontia abnormal in the Myoporaceae *7u "Sélaginées"/7w* small Family *8u "Gymnandra"/8w* abnormal *23–24m, 28–30m, 31–32m* **1153** *1–5m, 16–19m* **1154** *12–15m, 17–18m, 23–27m, 30–33m, 35–40m* **1155** *27–28m, 33u "soit|100"/35u "2, 5"/36u "7 1/2", 36u "12 1/2"/31–40w/wb* There are more species of Graminaceae in Holland, than in France, but far more individuals of Graminaceae. & so fewer Leguminosae even of individuals than of species. **1156** *22–25m* **1157** *26–27m* **1158** *16–18m, 29–30w* Families with confined ranges *36–37m* **1159** *16–19w* I doubt whether cd have been exterminated elsewhere *20w* above 300 species **1160** *4–6m* **1161** *7–8m, 22–25m, 26–29m/27u "d'une|régions"* **1162** *22–27m* **1164** *14–16m, 24–26w* Examples of above **1165** *25–28m/25–32w* Monocots. much more broken families Lower Families more broken: so Ferns, Equinatae &c. more distinct.– **1166** *1–3m* **1167** *24–28m* **1168** *11–14m* **1169** *⇑3–1m* **1170** *10–13m, 14u "caractéristiques", 22u "l'absence", 25u "Enfin|familles", 27u "de|Fougères"* **1172** *12–17m/12–21w* Bears on numbers in small isld – but yet the diversity of forms bears on adaptation *27–29m/29u "diminue"* **1174** *⇑8–5m* **1177** *8–10m* **1178** *wt* for World 83/17 *table.m "Grande Bretagne"/.w* Penny Encyclop. 83,827 sq miles *table.m "Nouvelle–Zélande"/.w* 8600 sq miles – Crawfurd **1179** *table.w* I wish I knew real size ⟨*of islands*⟩ so as to see as compared with continents real miles of inhabitants. ⟨*rest of table has dimensions of islands marked*⟩, *wt*♦ Make out or ask author whether mere relation to distances from mainland does not influence number of species *wb¢¢* **1180** *19–23m/20–27m/19–35w* These are important as showing something common in constitution of the grandest division of Veg. Kingm. **1181** *1–4m, 19m* **1184** *⇑9–6m, ⇑9u "de|Monocotylédones", ⇑8u "beaucoup|régions"* **1185** *17–19m* **1188** *16–18m* **1189** *29u "prédominantes"/w* Definition p1170 **1194** *2nd table.m "Amentacées"* **1195** *3rd table.w* This very different proportion **1197** *3rd table.m "Légumineuses"* **1199** *1st table.m "Crucifères", 3rd table.m "Composées" "Scrophulariacées" "Renonculacées"* **1200** *1st table.m "Graminées"* **1202** *3rd table.m "Légumineuses"* **1203** *3rd table.m/w* about size of Canary Isd **1204** *1st table.m/w/wt* Compare Sardinia & Canary Isd too Big **1206** *2nd table.m "Rosacées" "Composées" "Amentacées" "Renonculacées"/.w* very curious **1207** *2nd table.m "Sur 157 Phan" "Rubiacées" "Verbénacées"/w* very peculiar **1208** *first table.m/w* These families prevail irregular **1209** *3rd table.m "Salsolacées"* **1210** *3rd table.w* Cambridge has 866 sp. *m/wb* How much more pure *wb* Same general proportion as elsewhere **1211** *1st table.m/w* How the orders of the Families agree.– **1212** *1st table.m "Rosacées" "Amentacées", 2nd table.m "Légumineuses", 3rd table.w* Rosaceae seem to abound in N. America **1214** *2nd table.m* **1215** *2nd table.m "Orchidées"/.w* Compositae not here *3rd table.u "57 Fougères et 9 Lycopodiacées"/.w* hardly any Compos. **1216** *1–2u "Composées"/!, 3rd table.m "Acanthacées"* **1217** *1st table.m "Orchidées" "Rubiacées"/.w* like New Guinea **1218** *1st table.m, 2nd table.m "Malvacées"* **1219** *2nd table.w* Malvaceae prevail in W. Indies **1220** *1st table.m "Mélastomacées" "Malvacées", 2nd table.m "Orchidées", 3rd table.m "Euphorbiacées"* **1222** *3rd table.m* **1223** *2nd table.m "Scrophulariacées" "Rosacées" "Crucifères"* **1225** *11u "Mélastomacées", table.m "Protéacées" "Eparcridées", ⇑2–1m* **1226** *table.m, ⇑3u "29° lat. S."* **1227** *1st table.m "Graminées" "Malvacées" "Aspholédées", 2nd table.m "Scrophulariacées"/.w* None *.u "Myrtacées", ⇑3u "Scrophulariacées", ⇑2u "Epacridées"* **1228** *1st table.m/w* very peculiar **1229** *3rd table.m "Cypéracées" "Géraniacées"* **1230** *table.m "Graminées"* **1231** *3rd table.m "Myrtacées" "Solanacées" "Berbéridées"* **1232** *12–14m, 18u "316"/18–20m, table.m "Composées" "Caryophyllées"* **1234** *1–24w* He seems to think great object to get picture of country **1235** *23–25m, 21–31w* ie the number of Fam., making half the Flora. ie about 7 or 8 this number depends on richness of species in Flora *⇑2–1u "nombre|Vert"/w* so he considers these islands have few species **1236** *15–18m/12–24w* This wd have been more useful to me if all Families had been counted. I do not see how it bears on me.– **1237** *11–14m/10–16w* Hence under unfavourable conditions the great & increasing Families chiefly prevail *22u "Prédominantes"/w* Definit p1170 *22–25w* These must be the growing Families, either over world, or in some regions.– but sometimes peculiar regions.– *26–32w* Hence the predominating Families do not depend solely on the number of their species. **1238** *1–2m* **1239** *wt* When one sees Legum. Compos. & Graminae. increasing one can hardly doubt that complexity of vegetation is increasing & getting higher.– *13u "à | Maurice", 17–23m/w* Falkland 19/100 Juan Fernand 25/100 Tristan 9/100 *25w♦, 26–28w* Madeira 13/100 Azores 111/2/100 I think these facts overcome the fact that individual species are not widely disseminated, because they are correlated. *⇑15u/w* & Timor & New Guinea **1240** *17–19w* Perhaps replace Compositae *⇑20–12m, ⇑6u "Les | ces"* **1241** *1w* tropical *1–2[...], 3u "nos | tempérés", 7u "Mélastomacées", 13–16m* **1242** *24–27m* **1243** *1st table.m, ⇑4–1m* **1244** *1–2m* **1245** *17–24m* **1246** *28u "la Nouvelle-Zélande"/?, ⇑4–1m* **1247** *15–24m/17w* Cape **1248** *2–5m, 13–14m/14u "sont | représentée", 29–32m* **1249** *19–21m/w* ie, I presume in proportion of Families *⇑7–6m, ⇑5–1m* **1251** *16–20m, 21–24m, 21–22u "presque | d'espèces", 27–30m* **1252** *18u "la | boréal", 19u♦, 17–20m♦, 34–35u "Comme | arctique"/34–36m/w* new forms do not arise under unfavourable conditions. **1253** *4–17m/w* It is rather small region, like Lakes, as well as unfavourable.– In middle tertiary still smaller area. Perhaps sea round Pole – If there be circumpolar sea, on some theory Probable.– **1254** *23u↔/23–24m/12–19w* These imply the most fundamental & longest separation, excepting so far as difference may depend on conditions *26u "énumeration", 27m, 28w* 3 *33m♦, 35–36m/wb* Except that Isld no islands seem to have any characteristic Fam. **1255** *1–2w* 4 *3–6m, 7u "intertropicale", 9–13w* 16 Fams highly characteristic add one for Chile *18–19m, 24–23w* only 4 ♣ highly characteristic *⇑10–9w* 5 *⇑4–3w* 5 **1256** *1–6m/wt* Looking at plants on I or at animals, taking most distinct forms. It is clear I think that S. America excluding S. extremity most distinct – then Australia (2), – Asia (3), – Mediterranean (4), Cape (5) (temperate N. America 6) – But Decandolle does not consider very small Families. **1257** *27–29m* **1258** *wt* These right-hand tables apply to number of species in each Family, compared to world: conditions must influence to considerable extent.– *table.m, "Renonculacées".w* Refers to other division where found & in order *"Onagrariées".w* equal *"Cactacées".w* *high land **1259** *"Uvulariées".w* 13 beginning with 2. ie more preponderant in N. America than in any other region. **1260** *table.w* 20 beginning with 3 **1262** *table.w* 30 beginning with 4 – many peculiar **1263** *table.w* seem very distinct from temperate old world.– **1264** *table.w (numbers of species)* **1265** *wb* 34 – 10 with 10 or ♣ more predominant than in other countries **1266** *⇑4–1m* **1267** *10u "Familles | principaux", 11u "15"/14u "3"/11–14w* This looks as if ancient connection by East old world.– *15u "familles | principaux", 27–29m/w*✍ Glacial *⇑4u "6"/m, wb* I doubt whether had better be used **1268** *wt* I believe no revelation in science will be more wonderful, than the ancient history of geography of world, when we can feel sure that individual species & genera are descended from one common point, when we know more of means & facts of distribution of all organisms.– *1–15w* Behrens St in Eocene Period.– *11u "ensuite | avec"/10–13m/w* Glacial *18–27m/14–35w* Only the wider spreading Families have reached Africa. This looks as if Africa peopled at late times from Asia; & that at very ancient times there had been much communication between Asia & tropical America.– *20u "intertropicale | 2"/26u "15"/→/17w* very old *⇑11–8m* **1269** *3u "1", 38–39m, 42m* **1270** *9–10m, 13–16m* **1271** *table-head.w* or 75 miles *wb¢¢* **1272** *table.m "Nouvelle-Zélande"* **1273** *table.m* **1275** *2–4m, 6–11m/w* ie same species range more widely over Sweden. **1276** *3–7m, 9–15m, 19–22m, 24–27m* **1277** *36–38m* **1278** *3–5m, 15–18m, 32–34m* **1279** *9–11m, 32–37m* **1280** *11–14m, 21–23m* **1281** *6–8m/6u "les Malouines", 23–25m/21–24w* In archipelagoes all islds never in action together *⇑16u↔, ⇑15u↔, ⇑11u↔, ⇑10u↔, ⇑2u "Hooker's | 241", ⇑10–1w* I cannot at all admit enough to kill vegetation more than Madeira. Look at Etna, Vesuvius or even Sandwich Islds.– **1282** *wt/ ↕w* It might be argued that there has been fully as much or more creation than could have been anticipated, on theory of some unknown ratio of creation to area (but such theory is complicated by relationship of immigration to creation). Those who do not admit possibility of immigration, but believe in multiple creation, wd be most puzzled.– Then antiquity comes into play it may be said that islds near continent not old enough to have creations.– (a) Etna very old But generally if no new species exist in isolated islds looks as if some land – It can't be assumed that each isld very old.– *↕w* Even theory of creation is complicated by the relationship to easy immigration.– & by affinity to adjoining lands. *1–2m, 3–6m, 9–13m, 14–16m, 21–30m/24–25u "ont | élevées"/26–37w* volcanic soil very rich, except when too dry. How fertile Mauritius & Society Islds **1283** *1–9m, 19–20m, 30m* **1284** *11–19m/2–25w*

♣ During glacial epoch the conditions of low country must have been ♣ more similar, ? from length of days ?? & absence of peculiar united to present alpine climate ? than to present arctic regions.– There must always have been some arctic regions **1285** *2–3m/2u "200,000"* **1286** *19–21m* **1287** *table-head.w* what a pity not real number *3w* p1271 *table.m/!* **1288** *table.m/w* very curious **1289** *wt/ 1–26w* What I want to show is that when little life can be supported, most can be supported by very different forms; when more life, more forms; but not so different, as less differns in the conditions to be filled up.– *10–12m/11w* of course *14–16m, 19m, 20–23m/w* more fertile the country, more species in ♣ each genus. *25–27m, 28–32m, 33–37m/w* In short in ♣ species are created easier than genera ⇑*4u↔/w* with poor countries this doubtful ⇑*10a "pauvres"* in species not in fertility ⇑*10–1w/wb* My vars in Keeling good case. showing that species might come in closest approximation? *wb* It seems whatever causes may be, whether nature of country, or difficulty of immigration, & slowness of creation, when few species, many genera: must be only the different causes, I shd think.– **1290** *3–7m, 8–11m, 15–21m, 36–40m/w* these causes rather different. **1291** *4–7m, 14–17m/w* I do not think subject here approfondi *21–27m, 30–31m* **1292** *1–2m/ 1a "proportion"* in Falkland *14–18m/1–18w/wt* This looks as if isolation was not so important as many individuals.– a large archipelago Quite a continent – most favourable of all chiefly rising, but att✂. → Small outgrowing island may be most favourable, & yet make but ♣ few species difficulty of immigration of forms to become modified *29–31m, 33–35m/34u±* **1293** *wt* In quadrupeds, no Batrachians: – Apteryx & Curious Parrot – Extraordinary Parrot of Pacific Dodo & other birds of Mauritius, – where for from not flying have become insulated. Can insulation be more related to peculiar conditions than to mere crossing.– *17–23m/14–21w* One sees not only created so different ie very abnormal from ocean or islands (a) *25–31m* **1296** *table.m* ⇑*"Ile de Madère et Porto Santo"* **1297** *3–5m, 6–9m/w* but this does not go to cause *16–17m/16u±, 19–20m, 21m, 22–23m♦, 23–28m/29–40m/23–40w/wb* If we reject accidental introductions, I argue impossible. but look at Keeling Islds.– We shd conclude that in enormous period, certain genera & Families wd increase, & extinguish the various ones introduced & so bring proportion to average *wb* Think of effect of reuniting America & S. Africa, or New Holland **1298** *19–29m, 24–27m* **1299** *19–20m/19u "de chaque diluvium"* **1301** *8–9m, 10–11m* **1304** *34–37m* **1305** *5–6m, 32–36m, 38–41m (E. Meyer)* **1306** *36–39m* **1307** *1–2m* **1308** *wt* Climate was first idea, just as adaptation was first idea to explain structure of bodies – neither position of an organic being depends on adaptation to conditions, nor structure, both show ♣ a ruling however, viz descent. ⇑*3–1m* **1309** *← ⟨to p. 1308⟩/wt* (a) It is very important to show that the first great divisions of world are not according to climate, but geographical.– *4–5m/w* (a) *7–8m, 15–17m, 28–29m, 32–34m* **1311** *1–3m* **1312** *26–29m/27u "le|septentrionales"* **1313** *8–9m/↕w* The relation being between North & Alps & England, looks perhaps more like land: ♣ only north colonised subsequently. We must remember before it was warmer.– & apparently with more American vegetation.– The uniform extra outer vegetation, wd have been driven South. Baffin Bay then a great separation. & Iceland & Greenland Faroe, must have been peopled subsequently to Alps & old lowland of Europe *11–14m,* ⇑*6–1m* **1314** *29–37m/?/29–30w* transported by ice **1315** *34–38m* **1316** *28–34m, 35–38m* **1317** *18u "districts montueux"* **1318** *3–8m/1–6w* Land of Mediterranean rest on much better ground.– *18–30w* !! This is poorest speculation in whole Book **1319** *15–18w* But these Compositae hate damp. *35u "espèces| anciennes"* **1320** *5–9m/!!, 10–11m,* ⇑*7–1m* **1321** *17–20m, 22–26m, 26–27u↔, 34–37m* **1322** *25–30m* **1326** *6–18m (Lyell), 27–34m/w* covered with ice different from Kerguelen Land **1327** *29–33w* ?more likely cold, from neighbouring great continent.– **1328** *14–20m/16u "Alph.| 341"/14w* Hills of Java? *26–29m,* ⇑*3m/w* What evidence **1329** *1–5m/w* yet quadrupeds so distinct.– *13–16m,* ⇑*2–1m* **1330** *8–13m, 27u "aux|Antilles"/24–28m/w* agrees with extinct Mammifers *32–33u ↔* **1331** *1–5m, 4–9m, 25–28m, 33–38m* **1332** *1–5m✍/1–5m/4–5"...", 7u ↔/w* What kind of seeds.– *13u✍ "Lobéliacée ligneuse", 15–16m/12–21w* Do not more complicated plants change more rapidly, like Mammifers.– ⇑*9–8m* **1333** *6–10m, 23–27m/25u "Avec|imagination", 29–32m, 37–38m* **1334** *6–10m* **1335** *4–6m/1–21w* ie that the species were once common to all the islands: I cannot believe this: it wd make species too numerous; & not applicable to variation:– This is good argument, the existence of vars.– **1336** *1–4m, 5–7m/5–11w* why shd the species supposed to have been identical have become extinct & not the others? *9u* *"à | espèces", 11–12u↔, 15–18m/16u "inexplicable | la"* **1337** *4–8m, 28–30m/29u "Sainte | Afrique", 31–32u "laquelle | précédé", 32–40m* **1340** *9–11m* **1346** *3–7m, 17–19m/18–19u "que | utiles", ⇑2–1m* **1361** *⇑3m/w* Longifolia on Ischia p.1030 **1362a** *6u "982 | 986", 11m, 12m, 13m, 14m, 15m, 16m, 18–19m/18m/19m*

CANDOLLE, Alphonse de *Histoire des sciences et des savants, suivie d'autres études sur des sujets scientifiques et particuliers sur la sélection dans l'espèce humaine* H. Georg; Genève, Bâle, Lyon; 1873 [CUL, I]
beh, gd, h, pat, sp, v

SB p7 species generally in groups in the same country
357 – 358 – 361
Selection of Barbarians & uncivilized man
♣ Somewhere in Vol.

7 *24–31m/w* no separation a disparity **10** *19–23m* **11** *30–31m/31u "vol | ailleurs"* **316** *28–33m* **321** *8–9m* **322** *1–5?/3u "robes | dames", 21–24m/w* Cuckoo answers this question **357** *11–16m* **358** *19–23m* **359** *2–4m/3u "manière régulière"/3–4w* certainly not *6u "barbares", 7–8u ↔* **361** *6–12m* **482** *wb* Return by atavism of tendency to disease & about vaccination quite new

CANDOLLE, Alphonse de *La Phytographie* Paris; G. Masson; 1880 [CUL, I]
mhp, tm, v

NB 38 Notes; 81 Variation; 185 Cotyledon of Conifer in appearance multiple
197 198 Bloom
38 *1–7m* **81** *13–16m, 32m* **197** *16–27m* **198** *5–10m*

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NF Preserve ⟨*CD?*⟩
v *17m* **vi** *28m*

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NB O/

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ad, af, beh, br, cc, ci, dg, dic, em, fg, fo, gd, h, he, hl, ig, mhp, mn, no, oo, pat, phy, rd, sp, sx, sy, t, tm, ts, ud, v, wd, y

NB p. 480 Regrowth of thumb – Doubling of Germ
SB1 ❐ℜ
The difference between high & low in Fish, I think, is whether other classes are considered besides Fish.
♣ So many insects, It is very odd how many inhabitants of Fresh Water – Gasteropods – Insects – Spiders – Plants are land-productions metamorphosed & not marine productions. How few have passed on to the Sea. Hence so few Radiata in F Water The Sea has Whales, Seals & Penguins & formerly Lizards, Sea-Snakes, Turtles
p.3; p.15; p. 16 to 42 to r; p. 257; p.271; p.273,7; p.291; p.309; p.313; p.317; p.319;

CARPENTER, PHYSIOLOGY

p.322 to p. 332; p. 359; p 377; p 405; p 413; p 425; p 433; p 448; p.458; p.467; –470; p.476 to 480; 493; 546; 553; 561; 569; 571; 573; 575 to 585 to 610 to end

SB2 ❏β⟨2 *sheets*⟩

⟨*1*⟩ 16 on highness & lowness

79 – High Fish. N.B. I think on this subject there is much difference whether we look to Fish alone or to other classes ??

92 same number of cervical vertebrae in Giraffe & Whale – As in Reptiles only 2 sacral vertebrae in Kangaroo

96. top – special from the general in development

101 Rudimentary & not developed used as synonyms. [as well to talk of ♣ the final s in generitive, which is rudiment of his, as prophetic of new change, as in Rudimentary organ]

102 Compensation,– Balancement (only terms)

107 Fossils approach nearer to Archetypal form & to embryos of recent forms p110 Examples p.112 old forms intermediate or rather with various characters combined, which are now separate [an admirable summary chiefly from Owen on this subject] p 117 Summary of do

122 Even Carpenter believes plethoric population breeds less. Q So did Hugh Miller; must fight against

131 Even the most specialised organs retain other & more general powers Q

257 On 3 Kinds of Lungs in Fishes NQ

271. same organ, viz. heart, in 2 Classes developed at very different rate.

272, 277 Branchial vessels in loops in young chick like those in Fish or tadpole

279 Branching from aorta very variable in man

320 Gradation in Respiratory organs NQ Wings of insects Branchiae: Reuse○ of swimming bladder & original○ fraena into wings

322 respiratory organs in Arachnidae & Vertebrates NQ

332 Branchial slits

359 Pagets explanation of Rudiments (false) *[over]* Carpenter Comp Anatomy lent to L.K. Bruce○

⟨*2*⟩

405. Atrophy of muscle & bone when nerve cut of hind leg of Rabbit

413, 425, 433 Glands are f. of utmost simplicity in lower animals – Mammary, Biliary & Urinary

448 thinks light of larvae of glowworm for Birds to feed on them ! Q

458. Q Birds quits eggs when temperature 71° or 72° – not instinct or feeling? 465 Q The "proper electric current" of frog has curious analogy with electric discharge of Fish

467 Q Electrical Fishes 470 471 Explanation of

477 to 79, 80 I had better allude to Spallanzanis experiments of regrowth to show nisus formativus

480 On Double Monsters being a division of one.– Good discussion on Nisus

493. Abstract of M. Thuret on sexes of Fuci (Chapt. 3)

553 Medusae generally have sexes separate

561 Synapta hermaphrodite differently from ♣ all other Echinodermata

569 Hermaphrodite Byrozoa F.W. false

573 Salpidae Dichogamous 574 Lamellibranch generally hermaphrodite 575 Davaine Carpenter seems to doubt their Dichogamy p.577 Pteropoda require congress of two 589 Planaria do

577 Eggs of Linnaeus can be dried up & revivified

590 On Ascaris 64 Million Eggs Q

592 Dorsibranchiate Annelids dioicous, Tubicolae do. being fixed by Water – 595 Myriopoda do.

602 In White Ants, soldiers are Pupae NQ

608 Some Acaridae hermaphrodite water or land?

610 Fallopian & Placenta foreshadowed in Fish

627 Explanation of 2d young taking after 1st Father

Chapter on Development might read to see on law of most developed soonest ♣ developed

633 Orchis case, another instance

635 Decandolle says the more common & robust plants vary most

690 Secondarily automatic – mastication without will

693, 4 Definition of instinct – 696 Relation to habitual (N.B. origin seems chief difference between ♣ instinct & Habit

726 Different position of eyes, show I think all org never cd become sensorial NQ

730 Eye of Cephalopods Q

734 Eye avoids spectral aberration & chromatic aberration

title page *wb* 1854 **xvii** *zb* **3** *5–10m/6u "totally"/7u "evolution"* **9** *2u "the | of"* **10** *4–7m* **15** *19u "functional"/a "and"* internal *16–19m/18w* (a) *wb* But why shd analogy or functional correspondence be so much more than homological or structural correspondence?? **16** *14u "Lemna"/15u "Zostera", 17u "degraded"/16–21w* I wonder whether really: is there much abortion? *28u "Tree-Fern"/29u "Lemna|Zostera"/27–31m* **17** *51u "grade|in"* **18** *1–3m, 6u "homogeneousness", 15–16m/13–19w* I have misunderstood Von Baer *48–50m (Budd)* **19** *45–48m* **20** *25–28m* **23** *4–6m* **25** *30–35m* **29** *8–15m* **42** *14–19m/16u* **50** *23–27m* **58** *22–31m* **60** *29–35m* **62** *29–37m* **63** *2–5m* **79** *26–32m* **85** *8–12m* **87** *9–13m* **88** *49–50m* **89** *41–44m* **90** *48–50m* **91** *37–40m* **92** *10u "7", 13u "11|20"/12–16m, 35–40m, 44–46m* **93** *6–11m, 13–16m, 47–50m* **95** *7–10m, 45–49m* **96** *5–9m, 32–38m/34u "regarded|general", 38–40m* **97** *8–12m, 29–42m* **99** *11–15m* **101** *6–12m/w* Electric organs Poison glands *33u "rudimentary", "underdeveloped"/33w* not synonymous *41–48m* **102** *34–36??/36u "principle|compensation", 38u "occasions"/40u "accompanied"/42–51w* These do seem to me good examples **104** *32–39m/34u "teeth"* **107** *13–17m, 28–31m/30–31u "archetypal generality", 40–47m*♦ **109** *21–25m, 23–26m* **110** *1–6m, 15–19m* **111** *1–8m, fig.m, 22–39m, 40–43m* **112** *3–8m/6u "not|lowest", 15–18w* ask Huxley *40–44m (Forbes)* **113** *12–21m* **114** *5–11m, 23–28m/!* **115** *1–4m, 27–31m, 34–37m* **116** *1–4m, 5u "but|type"* **117** *19–41m, 29–32m/31u "osculant|forms"* **122** *22–27m/?/*Q **128** *27–30m* **130** *4–8m* **131** *32–36m, 38–47m* **137** *10–19m* **142** *41–42m* **143** *1–3m, 13–20m/w* Falkland Islds – Elephants *32–37m* **159** *9–13m* **257** *31–42m* **258** *1–11m/w* The foundation for another kind of Lung **261** *16w* Fish?, *18–20m/18–19u "Lepidosiren"* **264** *13–17m* **271** *25–30m* **272** *1–9m* **277** *26–39m, 44–50m* **279** *4–9m* **290** *33–38m/"..."/u "rate of life"* **309** *10–15m/w* Double organ **313** *21–24m* **316** *15w* see p 325, *23–27m*♦ **317** *38–50m* **319** *42–51m/→* **320** *1–3m, 29–34m* **322** *17–32m* **323** *21–26m, 30–34m, 45–48m/→* **324** *5–12m, 27–31m* **325** *wt* variable organ & a transitional group *3u "all|developed"/5u "Lepidosiren"/4–9w* So ranks as Reptile & not Fish *14–22m* **326** *fig.w* snake-like Saurian **332** *21–34m* **333** *30–37m* **359** *23–31m, 33–43m/w* But why present cases of undeveloped glands. *43–35w/wb* Rudiments of wings of insects. Rudiment of bone, when so much matter of same kind excreted. *wb* Rudiment of teeth in young growing whale, when so much phosphate of lime wasted. *wb* Rudiments in plants! more cellular as a rudiment of a style. Rudimentary instincts. **377** *39–45m* **405** *33–40m, 41–52m* **413** *27–32m, 29–31m/30u "simple structure"* **425** *1–8m* **433** *44–51m/→, wb* organs **434** *1–4m* **448** *49–53m/*Q **458** *30–36m/w* not instinct **465** *18–25m/19–20*Q **467** *33–38m/33–34*Q **470** *5–10m/6–8*Q **471** *7–43m/13–14*Q*/9–10w* see p 455 **476** *36–41m, 51–55m, 54u "subjected|influence", 54–55u "has|species", wb* But the domestic varieties keep constant under their proper condition. **477** *22–31m, 33–39m/36u "not|larva", 45–46m/*→ **478** *7–15m* **479** *wt* for 6 fingers *1–2m, 21–24m, 42–48m* **480** *2–19m, 11–12m, 33–43m/34u "thumb double"/35u "each|perfect"/37u "along|nail", 43u "formed"* **481** *20–23m, 22u "possessing|rudiments"* **493** *26–33m* **546** *7–10m* **553** *40–42m* **561** *39–44m* **569** *33–37m, 38–40m/39u "visceral cavity", 40–44m, 48–50m (Van Beneden, Allman)* **571** *10–16m/13u "within|cloaca"* **573** *18–23m/20u "ovaria|testes"/21u "not self-fertilizing", 25–28m* **574** *37–41m* **575** *1–3m/3u "ostensible co-existence", 8m, 10–16m, 19–23?/m/21u "ova|recognised"/23u "which|place", 27–32m/31u "which|find"/32u "general|shell"* **576** *37–39m/38m/u*♦*, 42–43m* **577** *23–25m, 29–31m/30–31u "being|fertility", 32–34m* **585** *43–47m, fig.m* **587** *wt* Phillip Philip *35–39m* **588** *8–16m* **589** *24–29m, 30–41m* **590** *11–15m/*Q **592** *26–27m, 32–34m, 41–45m* **593** *1–3m/3u "in|Planariae"* **595** *33–36m/33u "Myriapoda"/36u "dioecious"* **599** *wt* Larvae not being simply embryonic but likewise adaptative is never noticed.– **602** *8–11m* **608** *43u "Acaridae"/42–45m/w* land or water? **610** *24–27m* **611** *5–8m* **613** *20–27m, 27–33m* **615** *3–5w* not♦ applicable only in Vertebrata? *5–7m, 27–30m* **616** *42–46m* **627** *40–47m/42w* (a) *wb* (a) Grafting nearest analogue. does not support this view Do you think if you injected blood from one into other it wd make hair grow different? **628** *17–38m* **632** *9–14m* **633** *11–22m, 48–50m* **634** *8–12m, 24–27m, 36–40m, 43–48m* **635** *1–4m, 31–33m, 32u "61|species", 38–43m/45u "are common"* **637** *3–8m, 26–36m/w* not if nothing better possessed **638** *29–32m, 49–51m (Owen), 68–70m* **639** *40–45m* **690** *8–13m/"Medulla Oblongata"/10–11*Q✍*, 17–19m/19u "684"* **692** *31–38m* **693** *25–31m/27u "immediate|sensations", 28u "intentional adaptation", 43–47m/45u "no|required", 48–52m* **694** *4–8m, 14–17m, 17–29m/18–23w* sensori-motor connected with Instinct. *25u* **696** *31–37m/32a "these"* habitual **698** *7–14m, 17–20m, 22–45m* **699** *35–38m* **702** *20–24m/20–30w* dogs turning face on one side not see another petted.– **708** *10–13m, 23–27m/19–26w* Fear of punishment **726** *15–19w* Mysis Cirripede *18–30m/20–34w* difficult to explain, except on general diffusion of perception. **730** *18–21m, 26–28*Q*/26u "iris", 29–30m, 49–51m (Siebold)* **734** *11–18m, 28–33w* wonderful! *30–36m*

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cc, cs, dic, ex, fg, he, hy, sx, tm, v

NB 21; 30; 28; 34 to 58 very good, wonderful on Bud-Variations; 65; 66; 69; 70 Bud variations; 72; 57 Cytisus Adami
✏ p 21 & 30 on Dichogamy ⟨*rest* ◊⟩
SB ➜ p.28. on influence of Father – on colour &c. goodish evidence in certain cases
p67 On Hybrids presenting quite new characters Relation to Doublecross
Many valuable facts referred to proper places –

6a *16–23m* **21b** *36–57m/40–44w* colouring self–fertilised *48–50m* **28b** *4–12m* **30a** *27–32m, 32–34m*✏*/30–38w*✏ in cold weather pollen matured later, *35–44m, 37–41m*✏*/40u "gelées"* **30b** *36–49m* **31a** *28–32m/"..."*✏*/29c*✍*/32c*✏*/ 28–32w* ie not crossed **34a** *wt* Bud-variations *1–18m/2–7w* Chrysanthemum **35b** *12–14w* Roses get list **36a** *1u "Baronne Prévost", 3u "cinq variétés"* **37a** *27–28w* Cherry, *51–55m/w* does not revert perfectly **37b** *10–11w* 3 fruits **38a** *10w* Plums **38b** *10–11w* Grapes *49–57m, wb* Apples show **39a** *6–10w* Haricot Maize & Potatos *23–38m/w* But this is by seed *38–41m/30–34w* variable when sown by seed **39b** *15–18m* **40b** *28u "sur|sur"/25–29m/w* Maize *29–36m* **41b** *2–13m/5–6w* Potatoes **42b** *10–16m* **54b** *1–3m*✏ **57a** *26–33w* Hycanths **57b** *1–2w* Cytisus *4–6m, 12–14m/12–13x*✏*, 19–24m, 33w*◆ New character *36 36–37m* **58a** *21–34m, 21–22m, 23–28w* X✏ Bud variation Effects of conditions **64a** *46–58m*◆ **65a** *76–82m/wb* Varies or breaks like tulips or Vidua **65b** *63–73m* **66b** *67–76m/71w* ie *wb* strongly heredetary **67a** *4–34m* **69b** *33m, 46–55m, 61–71m, 75–78m*✏ **70a** *6–13m/w* Double flowers *28–32m, 33–40m/w* form of bud variation like tulips, *44–50m/41–42w* conditions **70b** *15–19m/13–25w* moss Rare for seed *24–25w* by seed *43u "Moussense partout"/40–45m/w* Bud var *54–61m/w* Bud var *65–73m/66–67x*✏*/ 75–79m/75–76x*✏*/78–79m*✏*/wb* good like his case of Radish – Causes of Variation **71a** *25–30m/30x*✏*/25–26w* Bud var. *44–66m*✏*/57–61m/!* **72a** *32–39m/32–39m*✎*/33–34x*✏*/32w/wb* Barbary; this is in principal buds, not all affected conditions *wb* Causes of Variation Use these new facts under Var. under Nature **72b** *wt* change slowly *1–3m, 6–13m, 12–23m*✎*/15–20m/20–23m/ wb* These facts of beech & Barberry bear more on relation of conditions to inheritance *27–30m, 31–40m*

CARUS, Julius Victor *Geschichte der Biologie* München; R. Oldenbourg; 1872 [Down, I]

CARUS, Julius Victor, and ENGELMANN, Wilhelm *Bibliotheca zoologica* 2 vols; Leipzig; Wilhelm Engelmann; 1861 [CUL]

vol. 2 ℘
979 *58–64m* **1070** *43m* **1792a** *26m* **2000b** *61m, 78m* **2001a** *1m, 2m* **2026a** *52–55m* **2030b** *64m (Morren)* **2039a** *3m (Newport), 4m, 38m* **2129a** *35m (Wallace), 39m, 40m, 41m*

CARUS, Julius Victor, and GERSTAECKER, C.E. *Handbuch der Zoologie* Leipzig; Wilhelm Engelmann; 1875 [Down, first vol. only] ℘

CASPARI, Otto *Die Urgeschichte der Menschheit* 2 vols.; Leipzig; Brodhaus; 1873 [Down] ℘

CATALOGUE of the books and maps in the library of the Geological Society of London London; R. & J.E. Taylor; 1846 [CUL]

NB1 Read p109 Darluc Hist Nat Provence
112 Risso on Ranges
p.111 Cirripedia Lamarck
In the Presentation Copies in list given in Journal Feb 1851 – Many useful to M
Periodicals
p8. Linn Trans of Normandy
Good Journals
Agassiz Recherches sur les Poissons Fossiles – of Old Red Sandstone p.60
Calcutta Journal of Nat Hist vol 3 & 4
NB2 107 ⟨*he means 109*⟩ Dict des sc nat
109 Forbes Star-fish
111 Loudon, Arboretum
112 Royle
Buckland's ♣ Bridgewater Treatise
p67 Pictet Pal.
Bowerbank – Plants of London Clay
R. Agricult Journal – Edinburgh – other Journals
Wernerian Transactions & Other Journals recd
Boston Journal

xii *8–9m/w* marked *36–37m/w* marked **3** *15m/16w* read **4** *38m/w* read **5** *19m* **6** *41–42m* **7** *1–2m, 30m/w* read **8** *13m* **9** *2–7m/4w*✍ Hooker for *8w* read *12–16m, 19m/w* read *21m/w* read, *27–29m* **12** *24–25w* I do not think worth reading *25m, 35m/w* read **13** *6m, 8m, 17m/w* read *46m* **14** *5m/w* read *6m* **25** *38m* **33** *26m* **58** *5–8m, 10–11m* **60** *2–8m* **61** *4m, 28m* **65** *10w* vol. 2 *11–12m* **66** *35–36m* **67** *28–29m, 40–41m, 42u "in vol. 4", 45m, 48m* **68** *33–35m* **106** *18m* **107** *9m* **108** *7m, 14m, 23m, 27m, 32m, 41m* **109** *6m, 18–19m, 34m* **110** *40m* **111** *3m, 27m, 33m, 39–40m* **112** *49m* **113** *12m*

℘

209b *53–55m (Brocchi)* **210a** *4m (Bronn)* **217a** *18m (Lea, J.)*

CATALOGUE of the Chiroptera in the collection of the British Museum (G.E. Todd); London; by order of the Trustees; 1878 [Down, I]
ig, tm

NB xvii Gradations in complex Nasal appendages of Bats
xvii *21–35m, 36m* **xviii** *17–26m* **xix** *10–19m*

CATALOGUE of the scientific books in the library of the Royal Society London; Richard & John E. Taylor; 1839 [CUL, S]
fg

NF E.W. Strickland 31 Robert St Chelsea Mondays & Thursdays
NB1 Hills Essay on Natural Hist 1752; Montagu Testacea; Libr in Royal
NB2 Brickells Nat Hist of N. Carolina
Whewells Bridgewater Treatise
read Lawrence Lectures on Man 1819
Read Harlan medical & phis Researches
Edwards. sur la charactere physiologique – des hommes des races diverses p.497 – 1829 – read – 2d Edit 1841 is to be published
James on man physiologically & spycologically considered
Edinburgh Hort Soc & Highland Soc
p 387 List of Hort & Agricult transacts
Lindley's Horticulture ??
p.721 Forster on Migration of Birds
505 by Isode G. St Hilaire
p740 = Amoenitates Acad.–
p767 Stillingfleet Transact do –? read Broderip?
p.639. Asiatic Journal Hooker says good.
NB3 p 396 Decandolle papers
p 552 Quetelet sur la loi de la croissance de l'homme
p.758 Quetelet sur l'homme et le developpement de ses facultes
Dubois voyage
Lichtenstein's Travels read

Loefflings travels Louisiana
Mackenzie north PoleO
Ramond's voyage on M. Perdu
Natural Hist.:
p581 Barton's fragment in Nat. Hist.
583 Catesby's Nat Hist of Florida
585 Linnaeus on study of nature
Virey's Philosophie & Histoire Naturelle 1835 a miserable book according to Brougham – read
Lawrence Lect on Man
538 Meckel
474, 582 Blumenbach: must be read.–
582 Buffon.
449 Pallas Spicilegia Zoolog
510 Haller

contents page *9m/w, 11m/w, 12m/w, 13m/w, 14a¢, 15m/w, 17m, 18m/w* marked **387** *3–32m, 7m, 9m* **388** *20m, 23m/?* **393** *33–36m* **396** *48–53m* **398** *13m* **400** *6m* **401** *37–38m, 42m* **403** *43m* **404** *44–45m* **405** *8m, 29m* **406** *37m/w* read **408** *38m* **409** *53m* **410** *41m* **411** *50–51m* **412** *8m* **414** *3m, 5m, 7–10m, 8m* **415** *37m* **416** *6m, 11m* **418** *23m/w* read *29m* **420** *14m, 32m* **421** *7m, 50m* **422** *4m/w* read **425** *38m, 40m, 42m* **428** *1m/w* read *10m, 16m/w* read *18m* **429** *40–41m* **430** *33–34w* read **431** *17m, 18w* (one Edit 1619) *19–21w* Recommended by Blyth **432** *12m, 14m, 16m, 18m* **433** *18m, 41m* **434** *42m* **435** *30m/w* read *38m/w* read **439** *32–33m, 44m* **440** *20–21m, 22–24m, 32m/w* read **441** *1m/w* read *20m* **442** *16–19m, 26–29m* **443** *26–29m, 43–45m* **444** *14–20m/w* Read Pigeons & Fowls **445** *11m* **447** *22m, 31m* **448** *10m/u*✍ *"1788–1806", 14m/w* read *46m/w* read *51m* **449** *3–10m, 9m, 43m, 46–47m, wb* Shriften Berlin◗ p.589 **450** *35m* **453** *48m/w* read **454** *17m/w* read *18w* vol 2 has the ●, *20–21m, 22–26w* Has this cirripedes? *28m* **455** *20m, 22–23m, 29m/w* read **456** *25–26m* **457** *15–16m/w* read *19c/w* 8to x *44m* **461** *17m, 18–19w* read *19–21m* **474** *54m/wb* QuotedO by Prichard **497** *10–12m/11w* read **505** *47m, 49m* **506** *38–39m/38w* read **512** *21–23m* **513** *11m* **522** *44m* **524** *32m* **538** *14–27m/16–30w* Dr Holland says some good views on generation See which vols *23m, 27m* **556** *20m* **566** *10m* **581** *37m* **582** *8m, 19m/w* read *41–42m* **583** *6m, 19m* **585** *29–30m, 41–42m/w* read **587** *38m, 43m, 47m* **589** *26m/w/22w* vol 1 & vol 5 **590** *32m, 36m* **591** *46m* **593** *2–3m, 8m, 18m, 34m/w* read **598** *9m, 48m* **599** *53–55m, 53m* **600** *17–22m/16w* read *23a "Agriculture"/m/29–34w* this followed by Archives *54m* **601** *21m, 51m, 53m* **602** *24m/w* read **614** *47–49m, 48m* **636** *45m* **637** *18m* **638** *6–9m, 53–54m* **639** *12m, 23u "1816–1832", 49–53m, 48–49m/wb*

Hooker says good **640** *26m* **651** *13m* **652** *36m, zb* **653** *7m, 16m* **655** *49m* **656** *4m* **657** *42m, 47w* read *54m* **658** *9m* **659** *7m, 32m* **660** *6–13m, 15m* **661** *43m, 47m* **662** *16m* **664** *26w* read **665** *6m, 15m, 19m, 44m/w* read *50m/w* read **666** *22m/w* read *41w* read *43m* **667** *14m* **668** *35–38m, 50m* **669** *42m, 53m* **670** *1m/w* read **671** *39m* **672** *47m* **674** *25m, 29m, 36m/34–35w* read, *38m* **676** *3m/4–7w* I suspect appalling on separation **677** *12m, 32m* **682** *44–47m* **688** *25m* **689** *26–28m* **721** *26m* **740** *25m/21–28w* Lyell believes Broderip has Engl. translation **744** *5m* **767** *38m*

CATON, John Dean *A summer in Norway* 1875 [CUL, S, I]

NB O/

CATON, John Dean *The antelope and deer of America* New York; Hurd & Houghton; 1877 [Down]
beh, br, cc, v

NB p.46 Antelope weeping; 90; 156; Deer not breeding in Parks 294; do.– 304
46 *33–42m* **47** *3–10m* **90** *26–31m/w* analogous var. **156** *32–42m* **157** *30–37m* **158** *27–32m* **294** *17–22m, 21–31m* **295** *9–14m, 22–28m* **304** *22–24m* **305** *1–4m, 6–9m, 12–15m*

CATTANEO, Giacomo *Darwinismo: saggio sulla evoluzione degli organismi* Milano; Fratelli Treves; 1880 [Down] ℘

CHAMBERS, Robert *Ancient sea margins* Edinburgh; W. and R. Chambers; 1848 [Down, I]
geo

21 *25m* **100** *3–9w¢¢/3u "847", 26–27w* 1202, say; 1210 **110** *17–19m* **113** *11–13m* **115** *1–2m/w* p61 of mine *5–8w* also entirely overlooks my arguments for the terraces **124** *23–27m* **157** *9–10w* 968; 821–6 *15–17w* 628; 706 **187** *1m, 28m* **189** *3m* **328** *3–5w¢¢, 11–22w* average interval 20ft. **330** *wt/↕w* 27ft interval on average & each observ. ♣ has for 5 or 6 ft of variation. so that real interval not more than 10ft *table.m/w¢¢, wb¢¢*

[CHAMBERS, Robert] *Vestiges of the natural history of creation* 6th edn; London; John Churchill; 1847 [CUL]
ad, ci, ds, em, fo, geo, hl, is, t, ti, tm, ts, v, y

SB1 ❑ℜ
p.67; 90; 123; 186; 195; 209; 225; 235; 249 Key of Book; 268; 274; 276; 280; 281; 283; 286; 290; 301; 307; 312; 319 p494; 501

The idea of a Fish passing into a Reptile (his idea) monstrous.–
How easily a soft cirripede might give rise to Balanus Segments of shell – if loose wd be lost
I will not specify any genealogies – much too little known at present.
Never use the word higher & lower – use more complicated, as the fish type (& not a mere repetition of parts) where cartilaginous forms are higher for being nearer reptiles & consequently mammalia.–
SB2 ❑β
90 Embryonic Reptiles now have biconcave vertebrae, extinct form had do
209 Inherent impulse to advance from oldest & simplest up to highest – & inherent impulse to become adapted. Quote in Preface. ♣ 249do 225 compare with tadpoles metamorphosis.
235 Yarrells Birds Gull getting thickened stomach Vol. 3 p571 Quotes Pennant on Trout in Galway getting thickened stomach. Was it Trout? Yarrell Fishes vol. 2 p.57 thinks Gillasso only a var. inner cuticle only undirected.
274 Monomyarian Molluscs before Dizaria – latter higher?
276 Young Gasteropods all alike when very young (Forbes) in Jameson's Journ
277 Nucleus of Cephalopods shells is also spiral like Gasteropod (Forbes) Carpenter Gen. Physiology This about Cephalopods, important for it shows what precursors were: see if accurate
280 Dibranchiate Cephalopods commence in Oolitic 281 Cephalopods change quicker because higher
301 Talks of nature being equally ready to go back as well as forward
307 Cecilia is a snake-like Batrachian
494,2 Curculios – Corydalis & Libellula & Scorpion in Coal
367 Remarks on isld not having mammals & less perfect life but really I need not allude to such Rubbish

67 *12–19m (Agassiz)* **90** *5–8m, 17–20m* **123** *21–26m/22–25w* See to this in true chalk **179** *17–26z* **186** *8–14m/w* new creations !! *16–22m* **195** *4–5m/w* is not Pecten very old **209** *1–16"..." 4u "inherent"/1–8m/w* quote to show difference V. Whewells remarks against this *11u "inherent"* **219** *22–26[...]* **220** *13[...* **221** *3...]* **225** *5–12m/w* whole key to theory **229** *16[...* **230** *24...]* **231** *10m/10–14[...], 17–21[...]* **232** *9[..., 20–25[...]* **235** *11...], 20–22m/w* Yarrell! **249** *23–26m* **267** *17–18??!/18u* *"exclusively marine"* **268** *2–7m, 7–18m (Agassiz)* **274** *11–21m* **276** *9–17m/12–13w* Forbes **277** *14–26m/24w* Carpenter **278** *6–20m* **280** *20–24m* **281** *2–16w* I must allude to all this **283** *12–15m* **286** *1–17w* It is strange error that generally he looks at every form, as having started from some known form. *19–23m* **290** *1–3m* **301** *7–11m, 15–17m* **307** *10–15m/w* I forget this Amph◗? **312** *1–3w* Hence many Turtles transformed!! *4–9m* **319** *1–3m/!!!, 17–20m/!!!/20w* oh **340** *5!!/u "walrus"* **409** *11?/z/u "monkeys | houses"* **494** *10–22m* **501** *7–8m* **505** *8m, 22m*

CHAPMAN, Henry C. *Evolution of life* Philadelphia; J.B. Lippincott; 1873 [Down, I]

NB O/
21 *8w* **22** *30w* **25** *13–15"..."/15w* Haeckel **86** *2–5"..."/4w* **100** *13w/c* **102** *32w/c* **130** *28c* **170** *34w*
⟨*untranscribed words not CD*⟩

CHAPMAN, John *Neuralgia and kindred diseases of the nervous system* London; J. & A. Churchill; 1873 [Down, I]

NB O/
xiv *21m* **xv** *8m, 17m* **xviii** *3m* **xx** *5m, 6m* **xxiv** *21m, 23m*
℘

CHAPUIS, F. *Le Pigeon voyageur belge* Verviers; 1865 [CUL, I, S]
beh

SA ⟨*pp. 170–171*⟩
⟨*conversions of km to miles*⟩
✍ nearly say 35 miles
George calculated these and average rates per minute for 20 selected flights the rate is 1066 metres per minute which gives per hour as above
59 *18–24m* **86** *24–27m* **87** *1–2m, 3–7m/5w* Instincts *10u "certains mâles"/9–24w ¢¢, 23–25m, 24–27m* **133** *wt* Verviers to Lyons **156** *11–15m* **159** *1–3m* **161** *9–16m* **165** *19–20m, 24u "kilomètre | minute", 28m* **166** *18u "soit | mètres", 23m/u "925"* **167** *7–10m/w* but due? **168** *22m/u "947"* **169** *1–4m/1u "Espagne"/2u "Liége", 5u "1 kilomètre"* **171** *wt*♦ which is kilometers?; average of 20 flights *¢¢, 5–6m/w*♦ = 366 metres?

CHARPENTIER, Jean de *Essai sur les glaciers et sur le terrain erratique du Rhône* Lausanne; Marc Ducloux; 1841 [Down]
℘

CHAUMONT, Francis Stephen Bennet *Lectures on state medicine* London; Smith, Elder & Co.; 1875 [Down, I]

NB 135 Beer; 165 cistern

CHILD, Gilbert W. *Essays on physiological subjects* Oxford; Combe, Gardner, Hall & Latham; 1868 [Down, I]
beh, he

NB Consang. Marriages

CHILD, Gilbert William *Essays on physiological subjects* 2nd edn; London; Longmans, Green & Co.; 1869 [Down, two copies]

NB O/
℘

CHILDREN, John George *Memoir of J.G. Children* Westminster; Josiah Bowyer, Nicholas & Sons, for private circulation; 1853 [Down]

CHUN, Carl *Fauna und Flora des Golfes von Neapel, 1. Ctenophorae* Leipzig; Wilhelm Engelmann; 1880 [Botany School] ℘

CLARCKE, Benjamin *On systematic botany and zoology* London; J. Bale & Sons; 1870 [Down]

CLARK, Henry James *Lucernariae and their allies* Washington; Smithsonian Institute; 1878 [Down] ℘

CLARK, Henry James *Mind in nature* New York; D. Appleton & Co.; 1865 [Down]
af, ct, fg, he, ig, sl, sp, tm

NB O/
SA ⟨*pp.94–95*⟩
p.61,66 Pangenesis; 81 do; 85 shows how numerous gemmules must be for carrying on to next generation Not all used up in formation of the animal.– This view of division of single egg, & not union of 2, is now very generally admitted.
Planaria cut in two says it is true budding
♦ 203 Snails asymmetrical.–
263 Lepidosiren, affinities
279 projecting instead of selecting
Lereboullet consult
272–276 Doubtful on intermediate forms in lower classes
279 projecting instead of selecting

61 *16–18m, 25–29m, 30–31u↔, 32–36m* **62** *1–4m* **66** *16–20m* **81** *22–23m/23u "fissi-*

gemmation", 33–35m/→ **82** *16–18m/11–19w* but with budding, I suppose for formation of eyes *32–35m* **85** *15–17m, 25–28m, 30m* **86** *1–5m* **93** *24–26m/25u "budded out", 29*→ **94** *15–17m* **203** *13–16m* **267** *9–15m* **272** *1–4m* **273** *1–13m* **276** *10–21m* **279** *23–30m*

CLARKE, J.W. *Cattle problems explained* Battle Creek, Michigan; published by the author; 1880 [Down]

CLAUS, Carl *Grundzüge der Zoologie* 2nd edn, 4 vols.; Mauburg und Leipzig; N.G. Eltwert'sche Universitäts Buchhandlung; 1871 [Down, S] ℘

CLAUS, Carl *Untersuchungen zur Erforschung der genealogischen Grundlage des Crustaceen-Systems* Wien; Carl Gerhold's Sohn; 1876 [Down]

CLELAND, John *Evolution, expression and sensation* Glasgow; James Maclehose; 1881 [Down, I]

COAN, Titus *Adventures in Patagonia* New York; Dodd, Mead & Co.; 1880 [Down]

NF not yet entered in Catalogue of Books

COGNETTI DE MARTIS, Salvatore *Le Forme primitive della evoluzione economica* Torino; Ermanno Loescher; 1881 [Down, I] ℘

COHN, Ferdinand *Die Pflanze: Vorträge aus dem Gebiete der Botanik* Breslau; Kern; 1882 [Down, I]

COLIN, Gabriel Constant *Traité de physiologie comparée des animaux domestiques* 2 vols.; Paris; J.B. Baillière; 1854–1856 [CUL] beh, cs, fg, he, hy, ig, mn, no, oo, phy, sx, tm, v, y

vol. 1 SB p.131, 5; p.142 to p.160; p.192; p374; 426; p617; 426; p614
Londeners Walk Watch while Snail fixed in crevice pulled in 3 directions to free itself
V. 2d Vol for Abstract
127 *9–10m*◆ **131** *10–12m/1–12w* none to aid another animal without that aided itself *13u "ait | inutiles"/w* V. p. 134 *15u "susceptible | essentielles", 26–31w* wildness in aboriginal Galapagos Birds.– *32–33m* **134** *35u "animal sanguinaire"* **135** *27m, 29–31m/29u "mulet | dans"/30u "espèce | cactus""* **142** *10–14m/11–12w* no gradation **143** *30–31m* **144** *27–31m* **145** *wt* I have seen young Ourang at looking glass *4–7m/5w* (a) **147** *31–34m* **151** *29–32m* **160** *13–16m* **192** *16–20m* **374** *35–39m* **426** *2–5m, 13–18m* **614** *wt¢¢, 12–18m/14u "bout | douze"/16u "dix | vingt"/17u "une | fois"* **617** *wt* my notions not half so odd as life of Parasite; bred in fish & matured in cormorant *wt¢¢, 1u "les | membraneux", 4u "le héron", 3–5m/w* V. next Page *11–15m, 33–40m, 34u "pylore | étroitesse", 35u "duvet | poils"* **618** *6–9m*

vol. 2 NB Book p 405; p492; 496; 529; 530 to 548; 614
SB □ℜ
374 On Hinny neighing on account of shape of Larynx
426 How soon animal gets accustomed to any particular food.–
614 – excellent on length of time grain kept in crop of Turkey – 18–20 hours –
617 Hawks throw pellets because pylorus so narrow
Vol 2.
492. M. Desfossé on hermaphrodite Fish Serranus
529 case of hybrid of Horse & Cow NQ author admit clearly only monster
530 Q∞ on ovules in mule
532 Vauban calculated produce of Sow in 12 years at 6 millions – on rate of increase Guinea–Fowl – on sterility of fat animal Ch. 3 Tegument of eggs of wild Peacocks
536 on characters of Mongrels so like Gartner Q
537, 539 Hinny more after ass than Horse Q✍
⟨over⟩
540 Horns transmitted from either parent
542 The older races transmit most surely
614 10 Mammae in Rabbit, Dogs &c

405 *44m (Geoffroy St Hilaire and Cuvier), wb* Has Waterhouse got it **492** *12–15m* **496** *17–22m* **497** *28–37m* **529** *1–2m, 11–24m* **530** *5–12m/8–9Q✍, 15m (Aristotle), 29–31m* **531** *18–23m, 29u "tigre | lion", 34–36m/35u "font | sanglier", 45m/u "fait | oeufs"/*→ **532** *2–6m, 26–30m, 27m/w* Sow?? *36–37u "engraissement | oiseaux", ⇑4–1m* **534** *10–15m/11–12u "Suisse | Poitou"* **535** *28–31m, 34–43m/41u "d'une | portée"* **536** *1–4m, 5–7m/5u "intermédiaire"/7u "mélange | fusion"/5–12w* how like to Gaertner, *14–17m, 15u "taureau | Jura", 25–30m, 31u "mulet | âne", 39u "deux | cotés"* **537** *10u "le | mamelons", 18–19u↔, 35–36m, 40–41m/40w* variable *43–45m/44u "incontestablement | prédomine"* **538** *7u "l'hémione mâle", 11–12m* **539** *2u "bardeau | mulet", 3u "la | exceptées", 31–34m, 40u "cheval | Hartmann", wb* Hartman is a German Book which I have seen referred to elsewhere **540** *13–15m, 19–21m, 37–39m, 38u* ± **541** *36–38m* **542** *18–19m, 30–32m* **543** *1–3m, 14–18m, 38–40m* **544** *14–19m/17–18u "boeuf|breton"/24–26m/1–27w* It certainly is not true that one can get as perfect offspring as parents **548** *1–6m* **614** *17–19m, 21–23m, 40–45m* **627** *31m/?*

COLLETT, Robert *Zoologi: Fiske* Christiania; Grøndall & Søn; 1880 [Down] ℘

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beh, gd, ss

NB 173 Electric snake
♣ Butterflies attracted by dead specimens S. Selection
♣ 182 Referred
♣ I have read as far as p 260 (very little)
367 all inhabitants of the Sargasso basin
374 Flying fish Habits
1 *11–12z* **173** *27–34m* **182** *6–9m/"..."* **183** *4–6m/5–6u "frequent battles"* **367** *12–21m* **374** *17–21m* **375** *32m* **376** *9–12m, 24–29m* **377** *14–19m* **end of booklist** *wb* 64

COLUMBUS, Christopher *Selected letters* ed. R.H. Major; London; Hakluyt Society; 1847 [Down]

COMSTOCK, John Henry *Report upon cotton insects* Washington; Government Printing Office; 1879 [CUL]
beh, gd, mg, oo, phy, tm

NF extra-floral glands; moths boring into melons→ 84–85; 86–87; 90–91; 97; 89 great powers of flight of moths; sweet juice eliminated – 319–320
NB 84 Extra-floral nectar-glands
89 Migration of moths grt distances
117 do & distribution
120 do
213 ants destroy enemies of cotton Nectaries
320 to end with Bibliography.
84 *10–22m, 41–46m* **85** *2–12m, 19–26m, 28–32m, 38–47m* **86** *4–21m* **89** *1–16m* **117** *7–13m/13u "Argotis annexa"* **120** *27–32m* **183** *26–29m* **213** *28–30m* **317** *wb* W. Trelease **320** *22–26m* **325** *14–22m, 31–38m* **326** *1–7m* **327** *5–7m* **331** *3–7m, 21–25m, 38–43m, 44–46m* **332** *24–30m, 40–47m/?* **333** *1–5m, 9–15m, 45m* **336** *11m*

COMSTOCK, John Henry *Report of the entomologist of the United States Department of Agriculture for the year 1879* Washington; Government Printing Office; 1880 [CUL]
ab

NB 203 Change of Habits in insect; 246 do
203 *25–28m* **246** *17–23m, 18–19u "At|acquired"*

CONGRÈS INTERNATIONAL d'anthropologie et d'archéologie préhistorique (Bologna, 1871) Bologna; Fava & Gavagnani; 1873 [Down, I by Cappellini (secretary of conference)]

℘
540 *1m* **542** *13m*

CONTA, Vasile *Théorie du fatalisme* Bruxelles; G. Mayolez; 1877 [Down]

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CONYBEARE, William Daniel, and PHILLIPS, William *Outlines of the geology of England and Wales* Part 1; London; William Phillips; 1822 [Down, pre-B]

⟨a few editorial marks, not CD⟩

COOK, James and KING, James *A voyage to the Pacific Ocean* 3 vols.; London; W. & A. Strachan; 1784 [CUL]

vol. 1 NF This Work was given on its first publication by Josiah Wedgwood Esq of Etruria to Erasmus Darwin M.D. of Derby and is given to their Grandson Charles Robt. Darwin by his Father in 1840

COOKE, Mordecai Cubitt *Mycographia, seu Icones fungorum* vol. 1; London; Williams & Norgate; 1879 [Down]

COTTA, Bernhard von *Die Geologie der Gegenwart* Leipzig; J.J. Weber; 1866 [CUL]
af, ch, gd, geo, sp

SB p.198; 200; 208 good; Geology, change of species; closely allied species; Die Urwelt der Schweiz Notes pinned
198 *10–12m, 14–15m* **199** *24–30m* **200** *21–23m, 31–33m* **201** *17m/14–16w* all found together **207** *4–12m* **208** *1–3m/2u "dort|Kreide", 13–15m/13u "sechsmalige", 21–25m, 25–27m* **209** *1–2m, 21–23m/22a "ausgedehnten"* Sea **210** *34m* **221** *28m*

COTTA, Bernhard von *Geology and history* London; Trübner & Co.; 1865 [Down]

COTTA, Bernhard von *Die Lagerungsverhältnisse an der Grenze zwischen Granit und Quader-Sandstein* Dresden und Leipzig; Almoldische Buchhandlung; 1838 [Down, fragment]

COX, Edward William *What am I? A popular introduction to the study of psychology* London; Longman & Co.; 1873 [Down, I]
ct, fg, hy, phy

64 ⇑*12–8m/w* One pollen gr not enough **66** *1–13w* I hardly understand what you mean by germs **68** *18–19x/16–18w* hybrids **70** *19–21m/14–21w* fused together **71** *2–5m* **72** *3–16w* influence of nerves – Plants **73** *26–28m/27u "must be"*

CRAWFURD, John *A descriptive dictionary of the Indian islands and adjacent countries* London; Bradbury & Evans; 1856 [Down]
br, gd, geo, is, se, v, ve, wd

SA ⟨*pp. 216–217*⟩
10; 14; 15; 16; 28; 32; 38; 46; 56; 59; 73; 74; 86; 88; 92; 101; 107; 113; 119; 121; 122; 123; 125; 92♦; 135; 138; 143; 144; 145; 152; 153; 171; 172; 217; 220; 225; 255; 256; 268; 269; 278; 288; 291; 298; 306; 316; 318; 320; 407; 417; 420; 433; A volcanic mountain wd undergo enormous degradation when subsided; Pen◗th note sheet missing
SA2 ❑β
See map at beginning Very many facts show that very large quadrupeds will not exist in the smaller islds
14 Mountains heights & nature of
15 Zoology of archipelago
38 Bantam Poultry came from Japan
112 History of Cock Q✐
119 Genus Cervus
121 Dog NQ
125 Duck no wild ones, Penguin common var.
136 Elephant of Borneo described by Pigafetta
145 Goose not breeding in Manilla
152 Hog, wild species of
153 Horses many breeds of, not aboriginal Q
255 Cat of Malay Q
268 Marian Isld nothing about aboriginal quadrupeds
288 Monkey wild species of
316 Ox tribe
10; 11; 16; 88; 28; 31; 46; 56; 59; 74; 217; 225; 92; 279; 337; 143; 171; 220; 291; 298; 306; 318; 321; 407; 417; 420; 433: ⟨*names of mammals of different islands*⟩

10 *57–62m/59u±* **11** *40–43m, 46–50m/46u±* **14** *40–43m, 45–47m* **15** *20–28m, 30u±, 35u±, 40–41m, 45–51m/51u "Babirusa", 53u±, 56–62m* **16** *1–6m, 4–9m/5u±, 13–17m* **28** *52–61m* **32** *3–10m* **38** *16u "It | Java", 23–27m* **46** *58–61m/61u "the | cat"* **47** *1u "The | hog"* **56** *42–48m, 44–51m/46u "hog"* **58** *37–43m* **59** *20–43m* **73** *52–59m* **74** *4–19m* **86** *54–59m* **87** *7–15m* **88** *11–20m* **92** *40–45m* **101** *14–18m* **107** *12–20m* **112** *51–56m, 61–63m/*Q **113** *1–3m/1u "among | rudest"/2u "domestic state", 2u "bears | species"/3u "Sumatra", 4u "Java", 4u "Malay | Philippines", 5–18m, 18–20m/19u "Malays | Javanese", 21–28m, 29–31m, 31–37m/35u "do | such", 42–48m/44u "in | Hindostan", 51–56m* **119** *1–16m, 4u "Cervus | Cervus", 11u "The | belongs"* **121** *46–62m* **122** *5–11m, 58–63m* **123** *4–9m/8u "crown-pigeon"* **125** *9–11m, 12–20m* **135** *52–59m* **136** *1–18m* **138** *1–3m* **143** *10–16m* **145** *49–57m* **152** *19–29m* **153** *26–62m, 32m/u "There | breeds", 33u "one | to", 36u ⟨u henceforth place-names⟩, 37u, 40–41*Q *43u, 44u, 48u, 49u 49u, 52u, 54u* **154** *20–24m, 42–51m* **155** *13–18m* **171** *47–61m, 61–64m* **172** *14–21m* **217** *12–17m* **220** *26–29m, 33–40m* **225** *40–52m* **255** *44–51m, 50–52m* **256** *13–19m, 31–38m* **268** *14–21m, 51–58m* **269** *14–18m, 37–39m* **278** *60–64m* **279** *4–6m* **288** *4–19m* **291** *26–27m* **298** *7–14m, 36–45m* **300** *22–25m, 31–40m* **306** *58–60m* **316** *9–16m, 22–29m* **318** *19–24m/20u "about | miles", 29–34m/29–31w* Depth **320** *51–58m* **321** *6–9m* **337** *54–59m* **407** *3–5m* **417** *32–42m* **420** *54–61m* **433** *26–31m*

CRAWFURD, John *A grammar and dictionary of the Malay language* vol. 1; London; Smith, Elder & Co.; 1852 [CUL]
beh, gd, geo, is, sy, ti, wd

NB ii; viii; xcv; civ; clxxxiii; ccvii; ccxl – on animals of Isd; ccxlviii; ? cclii area of New Zealand; ccliv; cclx; cclxii, & iv
SB ❑β
civ at Lucon no horse or Oxen – – only Hog, Dog, Goat, Fowl & perhaps Buffalo
xcv Timor said to be primitive
ccvii Horse wild probably feral in Celebes
ccxl Domestic animals of Pacific
cclv &c on men colonising islds in Pacific
cclix Dogs of N. Zealand same race of in Society Isd
cclx Traditions of introduction of esculent plants into N.Zealand
cclxii In Marianne group natives use Fish Bones for arrows ∴ not deer x
cclxiii Fowls wild or feral, probably from wreck, as Cat then found?

ii *1–6m* **iv** *3–8m* **v** *20–23m, 24–26z* **vi** *22–26m,* *27–29z* **viii** *19–22w¢¢, 34–38m* **xcv** *28–31m* **civ** *25u "absence", 26u "buffalo", 27–30m* **clxxxiii** *25–27m* **ccvii** *3–5m* **ccxl** *23–27m* **ccxli** *27–30m* **ccxlviii** *7m, 19–22m* **cclii** *18–22m, 19–21m/20a/w∉* **ccliv** *27–30m* **cclv** *25w* Sandwich **cclvi** *wt* Yet Sandwich had dogs, Hogs & Fowls *wt* Probably the frequency of being cast adrift wd make it obvious that, the Polynesians had better try to preserve animals..– *2–6m* **cclix** *15–17m, 20–23m* **cclx** *1–11m* **cclxii** *8–13m, 15–24m/w* see to Magellans voyage about Deer **cclxiii** *8–9m, 11–15m* **cclxiv** *6–8m, 23–30m, 34u "hog | wild", 35–36?*

CROLL *Climate and time in their geological relations* London; Daldry, Isbister & Co.; 1875 [Down, I]

NB Glasgow Geolog. Soc. iv.313 p7; Athenaeum Sep 22. '60; 32
xii *30–32m* 25 *10–11w¢¢, 17–19w ⟨not CD⟩* **331** *9–14m* **332** *6–9m (Geikie and Jukes)*

CROOKES, William *Psychic force and modern spiritualism* London; Longmans, Green & Co.; 1872 [Down]

CUNNINGHAM, Robert O. *Notes on the natural history of the Strait of Magellan* Edinburgh; Edmonton and Douglas; 1871 [Down, I]
beh, gd, is, y

NB ✍ ⟨*page numbers* ✏⟩
p56 Live terrestrial insects in sea when I found them
94 Young Logger-Headed Ducks can fly but lost when old
131 says Upland Geese do frequent lakes by the sea
195 lizard in T. del Fuego.–

56 *9–12m/9u "live beetles", 15–17m* **94** *29–32m* **131** *1–5m* **195** *6–10m*

CURTIS, William *The botanical magazine, or, flower-garden displayed* 2 vols. in one; London; Stephen Couchman; 1793 [Down, pre-B]

CUVIER, Georges *Essay on the theory of the earth, with geological illustrations by Professor Jameson* 5th edn, trans. by Jameson; London; William Blackwood, Edinburgh & T. Cadell; 1827 [CUL, pre-B, S]

281 *1–4m/2w* C11 *9–11m♦/24w* C21 **282** *9–10m* **283** *7w* 3 *10w* 4 *19–21w* 5, 6, 7 **284** *15w* 8 *21–22w* 9 **285** *7w* 10 *12–23m/17w* 11 *18–21m* **345** *21–23m* **346** *20–25m* **347** *2–9m* **354** *29–31m*

CUVIER, Georges *Leçons d'anatomie comparée* vols. 1–5; Paris; Baudouin; 1799–1805 [CUL, pre-B]

⟨*most w apparently not CD*⟩
vol. 1, 14 *10m* **16** *18m* **18** *26m* **21** *29m* **22** *2–3m* **23** *1m, 2m* **24** *5m, 9m, 10m, 14m* **25** *5m, 9m, 10m* **26** *12m* **29** *22m* **36** *19–20u↔* **37** *26c/a✍∉* **46** *17c∉* **50** *13m, 24–27u ±* **51** *13m, 19m, 20u "irritabilité", 24m, 28u "poissons", 29m* **52** *3m/5m/1–5w* Quant ils font sauter tout hors de l'eau *6u "n'ont aucune"* **62** *11a/c✍∉* **92** *16–17m, 30m* **93** *3u "sont", 4m/u "parallèles", 5–6u "leurs extrémités"* **94** *4m, 5m* **95** *21u "moindres", 23u "véritablement", 24m* **96** *3m, 6u "auxquelles", 7u "après | mort", 8m, 12m* **97** *2m, 3m, 5u "le fibre", 6u "de | corps"* **98** *19–20m, ⇑4m* **99** *11u "temps", 13w ⟨not CD⟩, 15m, 18u "dont", 18u "nerfs", 26u "insensibles", 27m* **100** *16m/u "nerfs", 18m/u "fonctions", 19u "dépendent", 20m/u "médullaires"* **101** *9–10m/9u "charnue", 14m, 23m, 24m, 27u "fluide", 28m* **102** *2m, 15m, 19m* **110** *9m/w* oiseaux **111** *20m/w* oiseau *25–27m, 28m/w* remarque *29m, 30m* **116** *12a/c∉* **120** *10m* **122** *13m✍* **124** *24a✍ ⟨not CD⟩* **125** *14m✍* **133** *18u "sensibilité | irritabilité", 19m, 25m* **134** *11m, 12w ⟨not CD⟩, 15m* **135** *3m, 19u "le milieu", 20m, 27–28m* **137** *2m, 17m, 19m/u "tous sens", 29m* **138** *1–2m, 5m, 7m* **139** *19u "cordes", 25–26m/26u "mêmes"* **140** *25–26m* **141** *28–29m* **144** *14a/c✍∉* **209** *4–6m✍* **248** *16–17m* **256** *10u "preuves", 11m* **276** *22m* **288** *15w* remarque **343** *20m✍* **365** *22–25w✍ ⟨not CD⟩* **449** *3–4m* **463** *12u "poches", 13u "qui"* **464** *14m* **465** *21u "muscles", 23m, 23u "muscle"* **466** *2m/u "et s'alonge", 3m, 10m* **472** *23–25m* **476** *5–6m, 19–20m/w ⟨not CD⟩* **480** *28m* **484** *8u✍ "déploiement | certain", 11–12u✍ "et | opposé"* **486** *11u "talon | étendre", 12m, 14u "fournit | immobile", 15–16m/w* marquez *23m/w∉* **488** *8u "soulever", 9u "extenseurs", 10m, 22m/u "homme"* **489** *6–7m/7u "et du", 8u "talon | arrière"* **490** ✍ *9u/c "gauche"/9w* d. derriere *11m* **494** *16–17m* **497** *23–29m/25–26w♦✍* **501** *11u✍ "certain point", 12u✍ "seroit | élastique"* **508** *10m, 14m, 17u "leurs | que"/[..., 18u "pieds sont"* **509** *7–8m* **510** *14u "La | mouvement", 15–16u↔, 25–26m* **511** *5u "avant d'arriver", 6u "le premier", 7–8m, 27–28m* **512** *5–6m, 9–11m, 25m* **513** *16–17m* **514** *3–4m, 8m, 11m, 15u "les | dans" "martinets | fous", 16m, 23–24m, 30m* **515** *1m/u "inflexible", 4u "centre | gravité", 5u, 6m, 8m, 11m, 15–16m, 17u "inférieure | corps", 22m/u "os", 23u "cylindre | creux"/23–*

CUVIER, ANAT. COMP.
24w✍ ⟨*not CD*⟩, *26u "aériennes"* **516** *1–2m, 2–3u "traitant des", 5–6m, 10–11m, 12u "entre", 13u "expansion | peau", 15–16m, 24–25m* **517** *2m, 3u "grèle | centre", 10m, 24–25m* **522** *14u*✍ *"156", table.w*✍*τ]*

vol. 2, 38 *14c/w* à noter **93** *21–22m* **94** *5m, 30m* **95** *3m, 10m, 12m, 21u "sensations"* **96** *12m/w*● **97** *18m/u "rendre", 20u "nerf simple"/w* gen *23w* à noter, *24m, 26m/u "plupart des", 28u "renflemens", 29w* à not *30m* **98** *2w*●, *4m, 8m* **103** *23u "médullaire", 24m, 25–26m* **104** *15u "médullaire", 16m* **105** *29m* **106** *5–6m, 20m* **107** *13–14m, 14m, 24m, 25–26m/25u "consommer"* **108** *7m, 8u "substance essentiellement", 9–10m, 13–14m, 15w* noter *24m/w*● **109** *1w* electrique *3m/u "isolés", 4u "conducteur", 5m, 6u "cohibans", 10m* **110** *15u "branlement", 16m, 20m* **111** *5m, 10m, 19u "autres ordres", 20m, 24m/u "contracte"/w* facture *29u "des sensations", 30m/u "portion | nerf"* **112** *3m, 12m, 13–14m* **113** *8m* **115** *9m* **117** *14m, 17a/c¢, 21–23w* ⟨*not CD*⟩

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vol. 4, 308 *4m* **309** *13m* **319** *15m* **331** *12m/w* ⟨*not CD*⟩, *13m/w* ⟨*not CD*⟩ **364** *15–17z/20–22z* **374** *14m* **486** *22m, 23u "que | fils", 24u "membranes | unissent", 25u "trachée"*

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beh, sx, tm

vol. 1, 151 *26–28m* **214** *20–24m* **219** *30–32m* **220** *9–11m, 27m* **227** *25–28m* **228** *5–7m, 13–16m* **306** *23–28m* **458** *2–4m* **459** *10–12m* **460** *24–25m* **462** *11–12m* **496** *9–13m* **560** *8–14m*

vol. 2 NB p.78
Q & G Cap Freycinet; L'Uranie (wrecked in Falklands); S. Astrolable
Peron, Lesueur artist; Baudin – Australia
Lesson & Garnot voyage de Coquille Capt. – Duperrey
viia *34w* 1 **viiia** *33w* 2 **viiib** *31w* 3 **ixa** *29w* 4 **ixb** *7w* 5 *12w* 6 *29w* 7 **xb** *15w* 8 *28w* 9 *36w* 10 **xia** *11w* 11 *15m/w* 12 **xib** *1m, 6w* 13 *15w* 14 **xiia** *1w* 15 *12w* 1, *32w* 2 **xib** *10w* 3 *37w* 4 **xiiia** *23w* 5 **12** *24–27m* **28** *23m* **30** *13–17m* **54** *20–23m* **60** *3–4m/u ↔, 6u "comme | femelle"* **65** *20–22m* **66** *19–20m* **73** *8–10m* **81** *15–19m* **83** *11–15m* **88** *28–30m* **101** *5m/w*✍ ● **103** *3–5m* **104** *29–31m* **106** *9–11m* **107** *14–17m* **110** *32–36m/*Q **111** *20–22m* **112** *14–16?* **113** *10–17m* **114** *5–7m* **119** *4–6m* **189** *zt* **237** *21–24m/23u "s'enfle | saison"* **247** *22–27m* **255** *11–13m* **333** *15–18m, 23m/w* Cape Fairweather

vol. 3, 11 *23–25m* **14** *25m* **15** *16–17m*✍ **17** *10–14m* **29** *12–15m* **33** *1–4m, 10–15m, 16–18m, 23–25m* **35** *3w* 50 *7w* 57, *10w* 58 *18w* 66 **36** *1w* 70 *12w* 110 *19w* 113 *20–21m* **39** *7–9m* **40** *15–17m, 31–33m* **42** *21–23m* **44** *3–5m, 7–9m, 14–16m* **46** *14–16m* **47** *19–20m* **48** *8–9m, 25–27m* **51** *6–8m* **55** *15–17m* **59** *8–11m* **60** *4–7m* **62** *18–21m* **68** *17–19m* **78** *4–9m* **81** *13–16m, 22–25m* **84** *16–20m* **87** *21–24m* **91** *1–6m* **166** ⇑*10–9m,* ⇑*8–7m,* ⇑*3–2m* **168** *17–22m* **170** *1–4m* **175** *20u "douze paires"* **177** *15–18m, 17m* **179** *16–20m* **207** *16–17m* **225** *20–24m* **228** *1–4m* **229** *1–5m* **235** *4–7m, 10–12m* **238** *6–10m* **266** *23–25m, 30–31m (von Baer)* **276** *22–23m* **300** *10–13m* **301** *1–4m (Lamarck), 15–16m* **302** *20–22m* **306** *6–7m, 9–10m* **308** *13–16m* **318** *5–13z, 22–24m* **339** ⇑*4–1m* **348** *11–12m,* ⇑*4–1m* **350** *9m, 14m* **373** ⇑*4–1m* **375** *16m, 19–22m* **379** *2m* **380** *19–22m, 32–33m, 35–36m* **385** *10–13m* **386** *7–10m* **392** *20–23m* **400** *24–27m* **402** *27–29m, zb* **403** *3–5m* **404** *12–13m* **409** *23m* **413** *17–20m* **415** *2–4m* **416** *4–6m* **422** *7–10m* **426** *3–10m*
℘

vol. 4, xvii *11–12m/w* Schiropoda, 99 **33** *23–27m* **44** *10m* **51** *11–12m, 16–19m* **67** *12m* **76** ⇑*9–6m* **79** *4m, 5m* **82** *2u±* **84** *14–18m* **91** *9m, 10m* **92** *13–16m* **95** *31m* **97** *10m, 15–17m* **100** *7–10m* **108** *14–18m* **110** *4–6m* **117** *21m* **118** *8–9m* **119** *9m, 11m, 26m* **120** *7m, 24m* **121** *24z* **122** *19–20m* **123** *31w* 2 **124** *17–18w* 3 **128** *6–10m* **132** *17–18*Q **133** *6m, 9–10m* **135** *9–10m, 22m* **136** *6w* 3 **138** *24m* **140** *3m* **141** *14m* **142** *4–8m* **151** *14w* 158 **154** *28–32m* **158** *12m* **171** *26–30m* **229** *3–6m* **234** *22–25m* **235** *21–22m* **236** *2–5m, 17–18?* **240** *14–19m* **241** *9–11m* **242** *20–22m* **244** *7–9m, 32–34m* **247** *2–4m, 10–12m* **250** *25–27m* **251** *23–25m* **254** *4–5m* **255** *29–30m* **257** *27–28m* **258** *5–8m, 12–15m, 24–26m* **259** *22–23m* **261** *21–24m, 32–33m* **270** *21–23m, 33–37m* **273** *27–28m* **275** *9–12m* **278** *19–21m* **281** *6–8m, 25–27m* **286** *2–5m, 16m* **287** *27–30m* **289** *10m* **290** *1–3m* **334** *4–8m, 28–29m* **335** *5–6m* **337** *24–27m* **338** *16–20m, 28–30m* **341** *27–29m* **346** *27–28m* **542** *30–39m* **543** *1u "mort | fuite"*

vol. 5 NB p. 305 Leon Dufour has written on stinging instruments of ants
p.291 – on antennae differing in male & female Cynips in no. of Joints.–
206 *23–25m* **305** *31–33m* **399** *13–14w* 2 **403** *29w* 3 **408** *5–7w* 5 **415** *10w* 8 *25–27w* 9 **423** *22–23w* 10

THE CYCLOPAEDIA of anatomy and physiology ed. R.B. Todd, 6 vols.; London;

Longman, Green, Longman & Roberts; 1835–1859 [Down]
beh, phy, tm

vol. 2, 221a *6–12m, 8–9u, 62–66m* **221b** *1–7m, 34u, 44u, 47u, 49u, 51–54m/54u, 56–59m, 61–69m, wb* the lower eyelid acts during laughter **222a** *17–26w* very little about it, seems to depress eyebrows & causes frown *21–26m, 65–68m* **222b** *10–14m, 15c, 38–42m* **223a** *26–31m, 54–55u* **224a** *9–13m, 24–28m* **224b** *6–9m, 12c/w∉, 50–55m* **225a** *31–33m* **225b** *17m, 33–35m* **226a** *48–56m* **226b** *3–9m* **227a** *6–10m, 53–56m, 62–69m*

vol. 3, 90a *21–30m* **93a** *38–43m* **94b** *24–25u* **98a** *13–17m* **566a** *55–58m* **566b** *41–51m* **722, 723** *w⟨FD⟩* **vol. 4, 1415a** *43–44u, 44m* **1415b** *29–31m, 30u, 35–37m/35u* **1424a** *38–41m* **1424b** *14–17m* **1425a** *42–50m, 54–59m* **1427b** *16–24m, 31–40m, 44–51m* **1427a** *8–12m* **1428a** *53–58m* **1496b** *4–11m, 29–36m* **1497a** *38–42m/39u* **1499a** *wt∉, 1–6m, 57–61m/60u* **1500a** *30–34m* **1500b** *1–4m, 40–46m* **1503a** *15–19m*

vol. 6, 301b *50–57m* **302b** *35–40m* **303b** *9–13m* **304a** *10–13m, 12u "vermiform"* **304b** *24–28m/25u* **317b** *37–42m* **318b** *24–36m/28u* **334a** *38–47m* **642a** *35–37m/"..."* **642b** *1–5m, 1–8"..."/7c* **643b** *16–19m*

DALLAS, William Sweetland *A natural history of the animal kingdom* London; Charles Griffin & Co.; n.d. [Down] ℘

DANA, James Dwight *On the classification and geographical distribution of Crustacea* Philadelphia; C. Sherman; 1853 [CUL, I]
gd, hl, sp, t, ti

SB ❑β
1557 No species in common to W. America & central Pacific, except few cosmopolites
1498 On number of species in Torrid zone (Q)
1501 less numerous but higher
1504 Tropics most prolific in Crustacean life
1528 general discussion on above heads
SA *⟨pp. 1588–1589; part of a letter from J.D. Dana⟩*

1498 *35–39m* **1501** *28–29m* **1503** *36–38m* **1528** *1–24m* **1529** *1–9m* **1531** *4–5m* **1533** *wt¢¢, table.m "Hyas", wb* Right *⟨also totals in each column totalled⟩* **1536** *table.m "Cyclograpsus"* **1538** *table.m "Lithodes" "Paguristes"* **1542** *table.m "Jaera"* **1543** *table.m "Amphoroidea"* **1544** *table.m "Anonyx" "Gammarus"* **1551** *30x✎/30–39m/34u, 39u ⟨place-names⟩, 35–37w* Before Glacial B.G. **1552** *7m, 7m, 9m, 12m, 31m/w* Med & Japan *33m, 40m/w* Med & Japan **1553** *1m/w, 3m/w, 5m/w, 7m/w* Med & Japan *8w* 36 species with enormous ranges *zb* **1554** *4x✎/3–9w* 42 sp with curious ranges.– belong to many genera **1557** *1–5m/4–5x✎, 11u↔, 23x✎, 28–33w* Evidently far more relation between E. & W. America than in shells & more species in common: but I can hardly judge *35–37m*♦ **1558** *19–24m/21x✎* **1561** *3w* a temperate genus *3x✎/w* New Zealand & America *25x✎* **1564** *30x✎* **1567** *18–19x✎* **1569** *10–11w* New Zealand & S. America *12x✎, 16w* do *19x✎, 26u "eighty-one", 29u "thirteen | Japan"/x✎/w* – New Zealand & Cape *30u "three"/x✎* **1570** *3x✎, 13x✎* **1574** *7a "above"* 33 *7x✎/w* 33 species in common *15–17m, 19x✎/19–22w* It is a difficulty so few being common to Europe & Cape *29w* 12 Natal & Japan **1576** *19u✎ "eastern | Australia", 25–28w* New Zealand & America *29x/?✎* **1578** *21u "Hymenicus | near"/21–32w* No representative case can be made out, as for common Antarctic land; New Zealand & America *⇑13–8m/⇑11u "over twelve"/⇑9x✎/⇑9–7w* are any of these southern genera I wonder *⇑10–8w* p.1561 & temperate genus of Amphoroidea *⇑8u "Cyclograpsus"/wb* is a wide ranger, Mid Pacific Florida *⇑8u "Paguristes"/wb* wide ranger *⇑7u "Betaeus"/wb* Indian Ocean

DANA, CRUSTACEA
torried ⇑*5u "Palaemon"/w* torrid *wb* Cancer none torrid N & S. America Ozius torrid **1579** *3x✎/u "Ozius|Xantho", 13x✎/u "Lithodes|Galathea"/w* range equator wards? ⇑*8–1m/u/w* ⟨*ranges and climatic zones of species named*⟩ **1580** *28–29x✎* **1581** *4u "Glyptonotus"/ 3–4x✎, 6x✎/13x✎/6w* New Zealand & Cape & S. America **1582** *7x✎/10–11x✎/8–9w* & Turtles &c **1583** *8x✎, 12x✎, 18–19x✎/19u "not|zone", 21x✎, 27x✎/w* New Zealand & America *27–28u "Amphoridae|Ozius"/x✎, 35x✎* **1584** *9x✎, 13c "Horn"/w* G Hope *22–23x/26–27x/36x✎/38u "Japan"* **1585** *4x✎, 11c "Horn"* Good Hope *16x✎, 27x✎* **1586** *13–14x✎, 21–22x✎, 29–30x✎, 32–33x✎* **1587** *13–25m/13–14x✎, 24–25x✎* **1588** *33–34x✎* **1589** *3–4x✎*

DANA, James Dwight *Corals and coral islands* New York; Dodd & Mead; 1872 [CUL, I]
geo

NB p.365; p.308 Loyalty Isld Quart Jour. 1847 p.61
7 *26–30m* **108** *8–10m* **116** *9–13m, 13–16m* **158** *1–2m, 10–11m, 31–32m* **171** *12m, 15–17m* **184** *22–26m* **193** *17u "Metia or"* **199** *9–10m* **219** *12–14m* **259** *13–16m* **267** ⇑*8m* **273** *15m* **301** *9–18m, 11–12m, 15–17m, 30–33m/33u "westernmost islands"* **302** *11–16m* **303** *3–7m, 10–13m, 14w* why not *23u "occur|are", 30–31m* **304** *10–13m, 18–25m/23w* why **305** *9–12m, 13–14m, 16m, 20u "Tatoa|volcano", 28–32m/30u "evidence|very"* **306** *6–8m, 12–14m, 14–17m, 20–22m* **307** *7–9m, 12–13m, 18–23m* **308** *25–29m* **309** *16–19m, 23–24m* **310** *6–12m* **311** *29–32m* **317** *8–10m* **320** *14–19m* **321** *16–20m* **322** *1–4m* **323** *17–23m* **324** *1–6m, 9–11m, 27–32m* **325** *11–13m/11–15"..."/12u "deep bays"* **326** *16–20m, 24–25u "Tutuila|coral", 28–32m* **327** *6–11m, 15–16w* I do not trust this evidence?? *17–22m/18u "wide reefs", 26–31m* **330** *28–31m* **331** *wt* Mr D also shows on authority of Mr Hale that ♣ these islanders seem to be here held ♣ where certain ● on Ponape were sacred *1–8m/4–8"...", 9m* **333** *22–28m/22u "the lagoon", 29u "two feet", 31–21→* **334** *2–4m, 16–18m/18u "six feet"/ 14–21w* This wd protect the leeward side *25–26m/w* From Keeling Isld *25a "Metia"* or Aurora solid coral rock *27–32m/29u "northeastern"* **336** *11u "three hundred", 26u "Rurutu", 28u "high", 29u "lower eminences", 30u "hundred", 30u "three hundred", 32u "part basaltic"* **337** *5–8m/6u "All|Tonga", 10–14m/12u "layer|thick", 31u "one|height"* **338** *4–7m, 14–17w* Samoan elevtn 2 or 3 *18u "two|three"* **339** *16u "proof|elevation"* **341** *12–14m* **342** *24–26m/24u "four|six"* **343** *19u "one|has", 32u "full|feet"* **345** *17–37m* **346** *wt* The nature of the slope – (Galapagos ●) Tasman – birds of atolls **351** *19–23m* **365** *1–7m/1–2u↔/4u "of|Hawaii"* **394a** *1m* **394b** *1m, 3m* **395b** *13m, 22m*

DANA, James Dwight *Manual of geology* Philadelphia; Theodore Bliss & Co.; 1863 [Down, I]

DANDOLO, Vincenzo *The art of rearing silkworms* London; John Murray; 1825 [CUL, pre-B]

NB 23; 244; 270
℘
23 *20–27m/22–23Q* **244** *1–3m* **270** *7–11m* **349** *25–28z*

DANIELSSEN, Daniel Cornelius and KOREN, Johan *Zoologi: Gephyrea* Christiania; Grødahl & Søhn; 1881 [Down] ℘

DARESTE, Camille *Recherches sur la production artificielle des monstruosités* Paris; C. Reinwald & Cie.; 1877 [Down, I]

DARWIN, Charles *De Afstamming van den Mensch (The descent of man)* trans. H. Hartog Heys van Zouteveen; Delft; Van Ijkema & Van Gijn; 1871 [CUL] ℘

DARWIN, Charles *En Naturforskares resa omkring jorden (Voyage of a naturalist)* trans. G. Lindström; Stockholm; J.L. Törnquist; 1872 [CUL] ℘

DARWIN, Charles *Het Ontstaam der Soorten (The origin of species)* trans. T.C. Winckler; Haarlem; A.C. Kruseman; 1860 [CUL, I] ℘

DARWIN, Charles *Origine delle specie (The origin of species)* trans. G. Canestrini; Torino; Unione Tipografico Torinese; 1875 [Down] ℘

DARWIN, Charles *L'Origine dell'uomo e la scelta in rapporto col sesso (The descent of man)* trans. M. Lessona; Torino; Unione Tipografico–Editrice Torinese; 1871 [CUL] ℘

DARWIN, Charles *Über die Entstehung der Arten in Thier- und Pflanzen-Reich durch natürliche Züchtung, oder Erhaltung der vervollkommneten Rassen im Kampfe um's Daseyn (The origin of species)* trans. H.G. Bronn; Stuttgart; E. Schweizerbart; 1860 [CUL] af, cc, cr, ct, ds, em, ex, fg, gd, ig, oo, phy, rd, sl, sy, t, ti, tm, ts, v

SF ☐ℜ ✑ ⟨*4 sheets*⟩
Bronn's criticisms for New Edit of Origin
Objects that I cannot precisely say why two species of Rats Hare & Rabbit assumed by selection their present characters – very true I can in no case say this – we know so little of use of parts & laws of correlation.– But I confess, I thus evade every special difficulty. Why one gets round and another pointed leaves.
Objects that in case of two varieties still living in abundance side by side how can intermediate races ♣ have been exterminated – But are there such cases, excluding such vars as albinos.– Do not they inhabit distinct countries or stations – surely this is general rule.–
Do you believe in Brehms sub-species. Have you seen them?
Thinks that variation arising from external conditions are linked together by intermediate – not those produced by n. selection.–
Why of two cells, primordial, one got volition & sensation & other did not.–
Says I ought to answer ♣ whether my primordial forms were created as eggs or full-grown &c.– Admits that vegetable-cell wd come first.
⟨*over*⟩
I think Schmidt says the eyes not so completely grown, at least form more related to those of external world ♣ near extreme of case – ♣
I shd never suppose with respect to his supposed changes in 2 Rats, that first longer or shorter tail & larger ears were acquired, but that all were modified together.–
✏ Might I not ask Creationist why tail longer or ear shorter? I could not ask this of him who believes that God makes his creation different for mere variety – like man fashions a pattern for mere variety.
⟨*over*⟩
Objects there might ® 100,000 creations as well as one: I agree ® then these would not have borne signs of common descent in homologies & embryology & rudimentary organs.
Some mistakes about my supposing several glacial periods.– Permian & Chalk
"Why shd the process of development have always caused one race rats in all different parts of world" I do not believe so – N. Zealand & Australia.

◆✏ I cannot see force of your objection because one cannot explain origination of life – the far grandest problem of any – why it wd not be gain to explain or account for forms; if this could be done – so we ♣ do not know what selecting is, but ● this its action.–
I fully agree to your final sentence – & I fully admit the many awful difficulties in my view.
⟨*over*⟩
Certainly, as he grants ® that both rats descended from one common parent.
As I cannot justify my opinions in any one single case, so I need not in any.– is as true ♣ as it is severe–
Though I can in no single instance, (except by conjecture, as longer legs of Hare for fleetness & not ● – longer ears to hear with) explain changes ♣ yet the structures &c led me to conclusion.– Laws of Variation will hereafter be understood far clearer

1 *wt* With
℘ ⟨*missing from p. 463*⟩

DARWIN, Charles *The zoology of the voyage of H.M.S. Beagle, under the command of Captain Fitzroy, R.N., during the years 1832 to 1836* London; Smith, Elder & Co.; 1840–1842 [CUL]
ex, gd, ig, mg, sp, ti

Part 1, 9 *wt* **4** apparently the Olivallaria auricular of d'Orbigny *19–20u "Oysters"/w*●, *22–23c/w∉, 22–37m* **17** *23–28m*◆ **28** *10c/w* already alluded to *11–13m/a "Toxodon"* in several cases it deviates from **29** *1a "Rodent"* **55** *13–21m, 20–25m/20w* a Pachyderm *24a "Macrauchenia"/w* animal **72** *33–37m* **74** *19–21m* **107** *1–2m, 37–39m*

Part 2, 17 *31–36m* **35** *13–15m* **48** *21w*✍ 12 73 *2w* 28 **81** *3–6m*

Part 3, NB S Representative species p31; 85◆
85 capital Glacial Representative, not quoted
113 Beaks of woodpeckers muddy at base
67✎ intermediate var in intermediate regions
16 ⟨*u=colourings*⟩ *4u, 5–6u, 9–10u, 10–16m/10–12"...", 29–34m/33u* **31** *11–13m* **34** *7–8*Q **66** *19–20*Q **67** *29–30*Q **83** *22–24z* **85** *9m* **108** *16–17w* Matutina *17c "ruficollis"* **113** *32m*/Q **143** *10–12*Q

Part 4, SB1 ⊸
Important to find out those genera which have no marine species or migratory species. In these distribution must offer great difficulty.– Are there many? Feb./56/

DARWIN, C., BEAGLE VOYAGE
SB2 Galapagos Fish ⟨*list of species*⟩
SB3 ❑β ✏
♦ p340 odd about Alpine forms becoming less numerous ⟨*rest* ◊⟩
F.W. Fish
p3 True Perch in S. America
p18 Dules R Tahiti – other species Java
p79 Atherina Valparaiso – some in brackish, some salt species
p98
p114 Poecilia Cyprinidae Lebias S. America
p120 Mesites Nov. Gen.
Salmonidae
p123 Tetragonopterus
p131 Aplochiton F.W. Genus Falklands & T. del Fuego
p142 Anguilla N. Zealand

Part 5, 2 *12w* 111 **4** *1w* 2 **5** *1w* 3 **6** *16w* 4 **7** *16w* 5 **8** *1u/5–6u ⟨colourings⟩, 9–14m, 27w* 6 **10** *1w* 7 **11** *1w* 8 **12** *20w* 9 **13** *23w* 10 **14** *31w* 11 **15** *33w* 12 **17** *1w* 13 **18** *7w* 121 **41** *3–4m* **51** *10–12m*

DARWIN, Charles ⟨*end of German translation of Beagle Journal?*⟩ [CUL]
pat, phy

298 *1–17w* thinks palm sap owing to life being continued **299** *14–23m/w* in Challen Id a well person new arriving made all sick – believe in New Zealand

DARWIN, Erasmus *The botanic garden* part 1 and part 2 vol. 1, bound together; London; J. Johnson; 1791; and part 2, vol. 2, 2nd edn [CULR, pre-B, S]
fg, gd, mhp, sp, sx

NB p.8; p197; p200; p202
Species of Plants p.4 to 7; 10 to 26 to 40; p.60; 75; 125; 147; 169; 185; 186; Abstract Dec 1857
p3 & 4 female bending down; p.5 In Genista the pistil Bending round to stamens which last shed their pollen; p.6 Labiatae similar observation; p.16 On Arum preventing Flies escaping (Ch. 3); 60 seeds of Tillandria found sticking to trees; 169 Amoen Acad on Rams giving fleeces

vol. 1 title page *wb* Second ♣ part 1790 which was published first **8** *23–31m* **9** *1"..."* **197** *15–17m 17u "the | bush", 20–21m* **198** ⇑*5–1m/w⟨FD⟩* **200** *14–16m, 21–22m* **202** *17–20m, 22–25m (White)*

vol. 2, part 1, 4 *18–20m* **5** *8–11m, 15–18m, 20–24m* **6** *9–12m/8–15w* These facts do not appear to me impossible, though Sprengel denies them **7** *12–17m (Linnaeus), 19u "with | only"* **10** *11–15m* **12** *15–18m* **14** *12–15m, 19m/u "two | different", 23?/u "approach | pistil"* **16** *11–20m* **17** *30–32m/31u "letter | with"* **26** ⇑*4–2m* **38** *20–22m 20u "Caterpillars which", 26–27m 26u "The lark"* **39** *11u "those | green"* **60** *22–24m 23u "with | on"* **75** ⇑*4m* **76** *8–9m* **107** *15–19m* **121** *11–15m* **125** *20–22m* **146** *23–25m* **147** *15–23m* **148** *18–20m* **149** *7–9m* **169** *19–20m* **185** *2–6m* **186** *4–21m*

DARWIN, Erasmus *The botanic garden, part* 2 vol. 2; Lichfield; J. Jackson; 1789 [CUL, pre-B]

DARWIN, Erasmus *Phytologia* London; J. Johnson; 1800 [CULR, pre-B, S]
beh, br, ch, che, cs, fg, mhp, pat, sh, sp, spo, sx, tm, y

NB 45 leaves closing in rain 95 96 99 102 106 108 114
116,8 – direct action of pollen of beans V. faba○
137 148 181 324 320 350 379 451 452 501 532 535 541 543 545 568 570 579 583
p207 215 Phosphorus not enough attended to but he thinks shells contain an abundance
217 use of Straw○
SB ❑β
106 Q Case of broom other plants bending pistil to late anthers, I doubt
116 Most curious case of rows of Beans, crossed Bath Soc. vol. 5, p.38
451. 1746 a Mr Cooper selecting his vegetables with care, & evidently independently (shows how it may have gone on) & with this care, does not find any change of seed. necessary. Quoted from Communications to Board of Agriculture
532 On Gout produced by intemperance. children can bear less.
568 Phytolacca 1 species with 20 stamens, another with 10, & another with 8 & 8 Pistils & another dioicous – Properly Decandria & Decagyngia○

2 *3–4m* **45** *9–13m* **55** *10–12m* **76** *31"..../32m* **77** *1–3m, 9...", 27–29m* **79** *29–32m* **95** *1–12m* **96** *10–16m/w* will not account for sporting **97** *16–19m/w* How do Horticulturers propagate these **99** *1–3m* **102** *1–5m* **106** *11–32m/w* shows that stigma long remains susceptible of impregnation **107** *1–9m* **108** *10–19m, 28–32m (Bonnet)* **109** *6–9m* **114** *13–18m, 21–32m* **115** *24–32m* **116** *1–3m/3–1m/11c "See | work"/ 22–28m/2–28w* important shows extent of crossing **117** *21u "Vol. | Academic"/18–21m (Schreber)* **118** *5–7m, 20–29m/22u "plants | his"*

119 *4–8m* **137** *7–15m/11u "Fordyce"* **148** *19–21m* **181** *1–5m* **207** *19–20m/19u "universally* | *vegetables"/20u "sufficiently* | *to"* **209** *15–16m* **211** *6–8m* **215** *6–9m, 7m* **217** *6–10m* **316** *13m* **320** *1–4m* **324** *24–32w* so that Sir G. Sebright explanation of ill effects of breeding in & in – same as my grandfathers for diseases in old trees **350** *3–9m, 29–31m* **379** *27–32m/?* **433** *1–2m, 6–7m* **451** *1–5m/w* good *7–14m, 19–23m, 28–32m* **452** *2–5m, 25–30m, 28–29m* **467** *9–12m* **501** *16–18m/18u "after flowering"* **531** *1–9m* **532** *10–15m, 19–25m* **533** *14–18m (Linnaeus)* **535** *2–4m (Linnaeus)/4u "Tracts* | *Hist."* **541** *18–22m* **543** *18–25m* **545** *16–19m/16u "Philos.* | *Nature"* **557** *7–10m, 18–21m, 22–25m/24u "old organizations", 30–32m* **559** *5–8m* **568** *4w* Fish? *6–10m/6u "the* | *organs"/w* is this so? *9w* Lamarck *11–30m* **569** *2–16m* **570** *1–3m* **577** *27–29m* **579** *17–20m (Murray)* **583** *20–23m*

DARWIN, Erasmus *The temple of nature*
London; J. Johnson; 1803 [CULR, pre-B, S; 2 copies, one unmarked]
beh, cr, phy, tm

NB O/
p54 In Man fundus not over opening of urethra; 63; 134
notes p.1; p.18; p.25
124 Love your mother as yourself
54 consonant to the dignity of the Creator of all things
Notes
120 Machine to speak
87 Reference to my Father on Spectra vol.76
p11 – advantage of ♣ Power Microscope

54 *12–13m, 26–28m/24–28[...]* **63** *26–27m* **68** *11–18m* **73** *13–17m* **124** *13–21m (Socrates)/17–21[...]/18c/19c∉* **134** *5–8m, 5–6m*
Notes, contents *"270"m, "295"m* **1** *20–21m* **11** *5–9m* **18** *3–7w* external or internal yolk sac – means of passage= *6–8m* **23** *2w*♦ Read **25** *15–19m* **33** *3w*♦ Read to p.36 **45** *20–23m* **120** *7–14m/8–12"...", 21–27m*

DARWIN, Erasmus *Zoonomia* 2 vols; London; J. Johnson; 1794–96 [CULR, pre-B]
beh, cc, ch, ds, gd, he, ig, pat, phy, sx, t, tm, v

vol. 1 NB1 23; 24; 46; 50; 52; 55; 57; 103; 104; 108 Malebranche gustation; 114; 130; 142; 140; 147; 148 Expression; 150; 152 Expression; 154; 160; 162; 190 I must show habits descended and then ◊; 192; 201; 203 whole chapter on sleep very good & all marked; 214; 242; 253; 265; 267; 268; 269; 423 expressions; 425; 427 – good yawning; 483; 487; 502; 504; 505; 509; 510; 517
NB2 p.183 centipedes cutting worm into 2 pieces
SA ⟨*pp. 504–5*⟩ ❑β
140 Q An infant soon forgets to suck – if calf once sucks cannot be ● up by hand
160 Q Kitten covering spoonful of water. Etty○ shaking foot, when it heard water
191 Compares Music with Instinct & when putting nose into glass
504 Lamarck concisely forestalled by my Grandfather
508 Teats on sheath of Horse (& in Mule)
– Plato thought that all animals Hermaphrodite

12 *14–19m* **23** *7–20m/8w* (a) *wb* (a) This is strange as hungry men never dream of hunger **24** *6–32m* **46** *6–21m* **50** *17–19w* instinctively so **52** *2–4m* **55** *12–15m/w* the mouth alone repeats the sensation **57** *8–10m, 13–29m/29u "whole skin"* **58** *1–9m/w* hope is mental desire **99** *27m, 31m* **103** *22–25m, 29–32m* **104** *7–16m* **105** *19–31m/23–27w* does habit imply having ideas? **106** *30–32m* **108** *22–25m/w* as soon as we became locomotive **114** *8–15m* **139** *8–17m (Haller)* **140** *5–7m, 20–26m (Harvey, Hippocrates)* **148** *14–18m* **150** *5–13m* **151** *11–14m* **152** *18–20m/w* Sir C. Bell says because he looks back **154** *12–14m/w* ◗ing to dogs in S. America *30–32m* **160** *15–21m* **162** *17–21m, 28–32m* **182** *9–12m, 19u "flesh* | *instincts"* **183** *9–17m* **190** *28–31m* **191** *wt* There appears to be perfect gradation from concatenated movements of which is only partly unconscious.– to those which by no effort can be recollected yet, but yet one does by instinct & habit.– *1–5m, 7–11m, 13–15m/w* & indeed the more she does the better *wb* all this is the reverse of intellectual power **192** *19–24m* **194** *8–17m* **195** *24–28m* **197** *4–6m* **199** *21–24m/w* no consciousness ⇑*4–1m* **201** *19–22m* **202** *25m* **203** *1–14m* **207** *22–27m* **208** *4–10m* **213** *4m/x* **214** *11–13m* **215** *13–16m* **216** *19–22m* **219** *1–5m/2u "tremulous convulsions"* **242** *22–25m* **253** *1–2m, 4–7m/w* tastes hereditary do *16–20m* **255** *15–18m/w*♦ tooth on edge sound, when earth is crushed between teeth – hear similar sound **265** *4–8m* **267** *13–20m/18–19u "sensation"/w*♦ I think this is *22–23m/w* only by drying the mouth **268** *20–23m, 24–27m, 28–31m* **269** *21–25m/22–27w* is there or not a muscular contrivance to expel this **270** *16–23m* **273** *16m* **339** ⇑*7m* **356** *14–17m/w* Vide **359** *3m* **387** *19m* **409** *7m/x*✍ **421** *12m*♦ **422** *7–10m, 14–16m/14u "exertion* *of", 24–25m* **423** *15–19m, 29–31m, 32m/w* over **424** *25–32m* **425** *7–9m, 11–24m, 27–31m* **427** *wt* yawning. streching fidgets (see Dr Holland) convulsions affecting the voluntary muscles – muscles of jaw, perhaps soonest brought into action & likewise perhaps connected by associations with ♣ digestive powers & therefore soonest gives relief. *7–9m/w* hence yawning attacks these muscles **431** *24m/x* **433** *5m/x (Helvetius)* **435** *9m/x* **455** *9m/x* **456** *15m/x*✍ **483** *26–28m/27u "polygonum viviparum"* **487** *10–19m* **500** *22–24m/[...]/23u "lactescent women"* **501** *1–5[...], 3w ⟨not CD⟩* **502** *13–26m, 26–31m/w* Bell Bridgewater Treatise argues against this **503** *8–16m, 25–28m* **504** *6–16m/12–16"..."/11–13w* Lamarck!! **505** *1–3m, 5–7m, 7–11m, 12–18m* **506** *wt* Sir Charles Bell perfectly confutes all this *7–13m/7–23w* May be quoted, to show no more wonderful.– if merely proved a law of nature we are accustomed to the former. I attempt to show means – which is impossible in the one animal **507** *7–10m, 10–11m/x/w* variation *19u "learned"/19–20w* what an assumption!!! **508** *11–32m* **509** *4a "generation"/wt* aided by endless attempts, of which only few are preserved.– Vide Hume's works *1–4m (Hume), 17–24m* **510** *27–32m/w* This pro◗ the Dr **511** *1–8m* **512** *15–16w* sex of Bees changed by food **514** *3–11m* **517** *8–14m*

vol. 2, 40 *4–8m/5w⟨CD?⟩* **43** *1–6m* **46** *12–15m* **145** *1–19w ⟨not CD⟩* **352** *17–31m* **573** *2u/w ⟨not CD⟩*

DARWIN, Robert Waring *New experiments on the ocular spectra of light and colours* London; J. Nichols; 1786 [CUL]

DARWIN, Robert Waring *Principia botanica; or, a concise and easy introduction to the sexual botany of Linnaeus* London; Longman, Hurst, Rees & Orme; 1810 [CUL, pre-B]

DAUBENY, Charles *A description of active and extinct volcanos* London; W. Phillips; 1826 [Down, pre-B]
geo, mi, ti

94 *21–25m/22–23w* A **95** *6–12m*✍*/8–9w* A **104** *30w*✍ Miocene **105** *15–17m, 23–31m* **170** *15–16w ⟨not CD⟩* **171** *13–14w ⟨not CD⟩* **180** *18–27w Covington copy 28–39m, 28–34m, 30–39m/"..."/36–37u "frequent | matrix"* **188** *11–15m/w* A **265** *13–22m* **266** *7"...", 11–24w*✍ This is correct is taken from chart of the Azores by Reade *13–24m (von Buch), 20c/w¢, fig.w*◆ fathoms *24"..."* **267** *zb* **270** *27–33m, 33m* **272** *11–12m/11u "Madagascar"* **273** *1–2m* **312** *9–16m* **313** *20–26m* **323** *16–17m/w* Carteret in new Britain V. Krusen✂ **324** *wt* New Britain Carteret saw spouting *1–4m, 5u "Ahryn", 7u "Tanna"* **325** *12–19m* **326** *1–6m* **334** *18–27m* **343** *27–30m* **350** *1–35m* **351** *1–11m* **361** *21–25*/25m, 27–35m/34w¢, wb* * Do either of these periods include ✂ Caracas & Quito case of connect✂ **386** *9–11m/10u "pearly lustre", 26–28m, 35–37m/35u "nepheline | leucite"* **387** *18–27m, 26–33m* **388** *1–6m* **401** *1–12m/2–5w*◆ Not in shifting sands **402** *10–35m*

DAUBRÉE, M. *Études et expériences synthétiques sur la métamorphisme et sur la formation des roches cristallines* Paris; Imprimerie Impériale; 1860 [Down, I] ℘

DAWKINS, William Boyd *Cave hunting* London; Macmillan & Co.; 1874 [Down]
wd

NB Used; 77 Domestic Anims; 78; 137; 382
77 *25–31m* **78** *2–8m* **137** *2–13m, 15–21m* **382** *25–29m*

DAWSON, James *Australian aborigines* Melbourne; George Robertson; 1881 [Down, I]
beh, oo

NB White louse beaten out by black louse – p.13
p.90 Change in Habits in Opossum
13 *1–5m* **90** *25–33m*
℘

DAWSON, John William *The fossil plants of the Devonian and Upper Silurian formations of Canada* Montreal; Dawson Bros.; London; Sampson, Low, Son & Marston; 1871 [CUL, I]

74 *21–32m* **77** *8–13m* **80** *7–10m, 22–26m*

DEFRANCE, M. *Tableau des corps organisés fossiles* Paris; F.G. Levrault; 1824 [Down, I by F.W.H.] ℘

DE LA BECHE, Henry Thomas *Researches in theoretical geology* London; Charles Knight; 1834 [CUL, on B]
che, geo, mi, t, ve

NB1 Every mountain chain may be considered as the ruin of an earthquake aided or obliterated by time! It is vain to bring first & other causes to bear they are comparatively insignificant.–
◆ 192; 198; 219; 242; 252; 293; 297;

greenstones traversing granites serious drawback –
NB2 ♦ 12 Spec Grav of Limestone–; 13 on Sulphur; 34; 43; 44; 53; 58; 95; 97 to 100 to 109 &c. Cleavage; 128; 131 When considering M. chain; 141 Hence value of unitary System enters; 147; 151; 177 futility of lake theory well shown

12 *30–34m* **13** *24–30m* **14** *1–13m* **31** *11–12w* of silver **34** *5–9m* **43** *1–12m, ⇑5m/wb* If so absence of ice in Arctic region proof of heat of bottom **44** *1–4m* **33** *30–34m* **58** *7–17m/12–16w* I cannot understand this *15–22m/17–18w* No *19–33m/x✍/wb✍* Study Mr Palmer's papers in Royal Transactions **60** *19–20m, wb* Something wrong because breakes from sea and swell nearly similar **61** *1–31m✍* **62** *1–33m✍* **63** *2–12m✍, 15–27m✍* **74a** *15m* **74b** *4m, 9m, 10m* **75** *11–12m, 12–14m* **93** *wt* Iquique *1–13m* **95** *wt* with respect to obsidian *3–30m* **96** *5–27m* **97** *19–28m/25u "subsequently"/??✍, wb* whilst soft because lime blends with clay *wb* Iquique *wb✍* anhydrite **99** *14–22m✍, wb✍* Fissure seen other○ to determine convulsing action.– Hence veins of quartz in many rocks. **100** *13–33m/32–33m, wb✍* Hollow concretion **101** *12–17m* **103** *3–8m* **104** *2–15m* **105** *14–33m✍* **109** *4–25m* **111** *22–30m* **128** *wt* Falkland Isd *1–8m* **129** *6–22m, 12–15z* **130** *24–26m* **131** *4–11m* **132** *10–31m* **136** *11–16m* **141** *17–26m* **147** *13–25m* **149** *28–34m* **150** *wt* Hence carbon removed from primary rocks – hence hydrogen & nitrogen **151** *wt* X Thence all the bituminous rocks, layers of shales, because carbonic acid decomposed water *10–26m* **160** *15–28m* **177** *6–24m, wb* applicable to Terraces **192** *26–33m* **193** *1–33m* **194** *1–15m, wb* formed by beaches **198** *wt* as long as stream rapid form gorge straight (why?) then zigzag, widen it, but could not produce sloping tub *12w* V. p200 **200** *11–18m, 19–21m, wb*♦ hence gorge straight **212** *12–31m* **213** *1–15m* **219** *10–31m* **220** *11–19m* **221** *13–32m* **242** *24–28m* **243** *1–9m* **252** *wt✍* where underdraught not too strong.– *5–23m/!!, wb✍* how can the part <u>above</u> the sea determine the action, submarine part may do so.– **267** *16–28m* **292** *wb* Mem. carbonic Acid in Springs– **293** *12–19m, 33u/"...", wb* Insist upon thickness in Cordillera however difficult to understand **297** *2–17m* **407** *23–27m✍/24a✍ "Voluta" O/*

DE LA BECHE, Henry Thomas *A selection of the geological memoirs contained in the Annals of Mines* London; William Phillips; 1824 [Down, pre-B] ℘

DELAGE, Yves *Contribution à l'étude de l'appareil circulatoire des Crustacés édriophthalmes marins* Paris; A. Hennuyer; 1881 [Down, I] ℘

DELAMER, Eugene Sebastian (Edmund Saul DIXON) *Pigeons and rabbits in their wild, domestic and captive states* London; G. Routledge & Co.; 1854 [CUL]
br, che, geo, oo, v

NB1 Carbons; Salt & Old Mortar & gravel to floor
Runt; Turbit?; Almond-Tumbler; Carrier; Fantail; Powter
NB2 p.1; p.2; p.22; p.38; p.51; p.53; p.66; p.68; p.69; p.70; p.72; p.75; p.77; p.82; p.95; p.114 good one Rabbit outbred other; p.133; 139
SB ❑β
95 Rabbits probably in Caesars time in Britain
114 If Warren stocked with Grey & Silver the latter will soon be bred out (on var. beating another Ch. 5)
141 Rabbit with longest ears known 22 inches and this length of ear great point.–
136 do not breed true.

1 *19–23m* **2** *20–35m/22u "Columella"* **3** *29–33m* **14** *zb* **17** *23–25m* **18** *27m, 28m, 31–32m, 35m, 37m* **19** *3–4m* **22** *10–14m* **30** *14–16m* **32** *34–35m* **33** *7m, 35m/u "twenty inches"* **34** *2–15m, 34–39m, wb* Brick next Pan **35** *22–23m, 30–32m* **36** *12–14m* **38** *12–17m, 25–27m, 27–28m* **41** *23m, 37–38m/38u "bay salt"* **42** *26–28m/27u "cumin"* **43** *12–14m, 15–16m/16u "old mortar"* **44** *12–14m, 30–31m* **46** *9–11m* **51** *28–33m* **53** *24–31m, wb* marked to end **54** *38–39m* **56** *2–7m, 8–12m, 21–23m/21u "pair"/22u "two | more", 34–39m* **57** *8m, 26–29m, 32–34m* **58** *9–11m* **59** *27–29m* **61** *22–24m* **63** *16–19m, 21–39m* **65** *1–4m* **66** *8–16m, 27–29m* **67** *29–36m* **68** *2–12m, 25–35m* **69** *3–11m, 33–37m* **70** *15–20m, 34–38m* **71** *25–31m* **72** *30–35m* **75** *17–25m* **facing 76** *fig.w* fig.5 Copied from Mr Delamer **77** *28–39m* **81** *14–15m* **82** *7–10m* **95** *12–22m* **114** *9–15m/10–11Q✍* **133** *20–39m/→* **134** *15–22m/18u "Angora rabbits"* **135** *14–18m* **136** *6–23m, 9–18m, 12–15m* **137** *2–6m, 13–17m, 33–36m* **139** *33–35m/33?/u "seveteen | ear", wb* See next Page **141** *5m, 32–33Q✍, 36–39m, 36–39m*

DELGADO, Joaquim Filippe Nery da Encarnação *Sobre a existencia do terreno siluriano no baixo alemtejo* Lisboa; Academia Real das Sciencias; 1876 [Down, I] ℘

DELPINO, Federico *Ulteriori osservazioni sulla dicogamia nel regno vegetale* Milano; Giuseppe Bernardoni; 1868–1874 [CUL, S]
cc, ct, fg, mhp, oo, phy, sx, t, tm

NB1 ✍
✏ p.16 Utricularia ⟨*rest* ◊⟩
91 Goodenia
170 Passiflora princeps
p177 In Liguria 1/3000 of Ophrys araneifera only get seed; a good many more near Florence
188 Marcgraviacea
224 Ceropegia
62 George✏◊ Has seen Bees, not Bombus visit flower of Trifolium.–
NB2 On Anemophilous Flowers (very full & good)
NB3 337; 342 Pontederia trimorphic
Cephalantera Grandiflora✐ – p149, 150 Orchids
154 – ✎ male more conspicuous & visited first✎
123 + 124 Ophrys ➾
(here also Pt 2)
<u>orchids</u> p61–62; p60 Laburnum
L. Mortigon○
NB4 ✍ Arumi p18
SB ✐; ♦✏
p61 Great Laburnum flower
62 Serapias perhaps gnawed
63 Calyx commestible long discussion on
121 says Sprengel right & M. & I wrong about nectary & lower flower only visited False drops of nectar.
149 Cephalantera ensifolia
150 Waechter – news of explosion of Neottia
See Part I on Ophrys
⟨*over*⟩
✍; ♦✎
Much on Orchids in Delpino Part <u>II</u> 211f Observazioni

Part 1, 6 *4–9m* **14** *23–26m* **15** *20–22m* **16** *2c/a¢, 30–35m* **22** *11–14m* **29** *29–32m* **33** *14u/wτ* **35** *11–14m* **51** *19–21m* **52** *2–7m* **59** *23–29m* **62** *1–9m* **75** *24–26m* **118** *22–23m* **119** *5–8m, 35m* **121** *27–31m* **122** *1–2m* **144** *23–27m, 29–35m* **148** *7–10m* **149** *17–19m* **158** *15–17m* **173** *3–5m* **176** *11–13m* **177** *16–24m* **188** *6–8m, 15–16m* **198** *7–8u/wτ, 10u/wτ* **202** *4–6m* **229** *26–29m* **258** *31–33m*

Part 2, fasc. 1, 22 *7–9m* **24** *13–15m* **25** *15–18m, 23–25m* **37** *1–6m* **fasc. 2, title page** *w* 21 Ruppia 24 **59** *31–35w* cells **60** *32–35m* **61** *29–32m (Fritz Müller)/29–35w* Kind of powder attraction to visit loose○ cells **62** *7–10m, 23–27m* **63** *4–17m (CD), 20m, 22–31w* Calyx & Petals attractive to be gnawed **121** *6–34m/w* thinks H. Muller & self wrong & Spengel right about false nectary – says only first flowers visited & then bees find out mistake – and that only few pods get **122** *2–16w* says cold accounts for bursting of Epidermia cells within the nectary *30–31m, wb* Other plants with false ♣ & true nectar- pollen both on same plant. Mem How long it is before nectar secretes **123** *1–29w* Despises idea that nectar an excretion & supposes false drops are rare excretion.– (Mem. common Laurel &&& Vicia.– *wb* Shining swelling like nectar & drops of true nectar on same plant. – thus explains case of Ophrys – Liperzia a case – I shall believe when insects seem to try & suck. ♣ **124** *22–27m* **149** *9–42m/9–39[...]/w* C. ensifolia 4 pollen-masses.– Viscid matter from stigma probably besmears backs of insects & thus pollen is carried **150** *1u "Periplocea"/1–4m/w* like Orchids *13–40w* W apparently did not know of CK Spengel, but was well aware of necessity of insects for fert. of Orchids & describes well the fert. of Neottia, viz. explosion of ● **154** *10–11m/w* Read *25–32m, wb* It explains male fl more conspicuous than female fl so as male to be visited first **155** *28–34m (Buchan White, Spengel)* **158** *34]* **210** *13c¢* **337** *wt* Dimorphic one protogynous & proterandrous *2–3m/[* **338** *30–35m* **342** *2–4m* **343** *15m/w* Read *27–28m/28w* Read **344** *1–7m, 21–24m, 24–29m/25–26w* Read **346** *11m, 12–14m/15w* Read **347** *19m/w* Read **348** *8m, 10m/w* Read *14–15m* **349** *25m/w* Read **351** *31m*

DENTON, William *Is Darwin right?* Wellesley, Mass.; Denton; 1881 [Down]

DESCRIPTIVE AND ILLUSTRATED CATALOGUE of the fossil organic remains of Mammalia and Aves contained in the Museum of the Royal College of England London; Richard & John E. Taylor; 1845 [Down, I by President and Council]

DESMAREST, Anselm Gaëtan *Mammalogie ou description des espèces des Mammifères* Paris; Veuve Agasse; 1820 [CUL, pre-B]
beh, hy, phy, rd, sp, ss, sx, sy, tm, v, y

NB ⟨♦ *up to "☞"*⟩
p481; p840 to; p.499; 434; 437
Dog p190; Cats p233x ● Tortoiseshell; 391
414 Hybrid Zebra & Horse
499 Ox
p347 Rabbit white star on forehead Important So silver grey has this when

young on head – I think Fancy rabbits have star on forehead No Brent says not particularly often
439 Cervus of Marianne Isld
☞ p193 ⟨*he means 198*⟩ Canis jubatus with curl of Hair along back female not differ from male Sexual selection
p392 Babyroussa female with lower canines smaller than male.– Wd Bartlett kn any waits ⟨*ie weights*⟩ & body proportions of animal
SB ❑β
190 Classification of Dogs – nothing particular, but I daresay good
233 Tortoise-shell cats all female
347 Young Hares always white star on Forehead (Silver Grey Rabbit has this)
391 Mongolia Pigs when young are striped
414 Hybrid Zebra & Ass band on legs
421 Corsican Pony small
430 Cervus elaphus smaller than common form
437 Cervus Marianus bad specimen – Sumatra species very close to
480 Goats, Horns absent in female of some Races – Horns differ in sexes & abort in some vars, either in one or both sexes
488 Wild Mouflon. Female either with small Horns or destitute of do
500 Little Zebra, Horns rudimentary periodically cast (like Deer Horns)
Do not mow but grunt
504 S. American cattle several varieties! Perhaps from different stock introduced

47 *wt* Primates to p. 107 **61a** *17–19m, 18–20m* **61b** *20u*✍ ±, *48–50m* **65a** *42u*✏↔, *53–54u*✏ *"sommet | crête"* **65b** *1–2u "parties | chair", 4–16m/4u "Sensiblement | petite"/8–9u "crêtes | saillantes"/12–13u "canines petites"/ 12m/w* Canines *16–17u "là | occiput", 29–30m/ u "indice | vertex"/w* yet male **66b** *6–15m, 16–18w* see p65 *20–24m/21u "par | touffus"/ 22u*✏↔ **67a** *21–23m* **67b** ✏ *14–15u "dont | cornet"/w* ear *45–49!, 50–51u "poils | haut"* **68a** *1–4m, 1–3m/2u*✏ **68b** *1–2m* **69a** *38–41m* **69b** *35–36m, 36–37m* **70b** *34–35m, 44–51m/44–50m* **71b** *19–30m/20–21u*✍ *"par | pelage"* **75a** *zt, 3m, 24–27m* **75b** *4–8m*✏, *17–18m* **79b** *28–35m*♦ **80b** *35–37m* **98a** *21–29m* **100b** *10–12m* **101a** *1–6m* **107b** *34–36m* **189b** *16–18m* **191a** *wt* xxx 195; xx 292 **191b** *37–38w* Greyhound **192a** *16–17m* **193b** *17–20m/18u "Chien courant", 38–42m/39ud* **194a** *24–27m* **195a** *30–31m/30u*♠ **195b** *8–9m/8u*♠*/8–9u*♠, *34–41m/36u*♠, *46–50m* **217b** *28–30m* **219a** *50–52m*✍, *zb* **223a** *37–42m*✍ **233a** *3–5m, 22–23m, 43–49m, 50–51m* **233b** *23–24m, 30–31m, 37–38m, 50–53m, 55–57m* **241b** *3–7m* **241a** *25u "mâle adulte", 27–28u "Cariné | moyenne"* **243a** *17u "improprement | blanc", 20–28m, 20–23u*±, *27u "marron | noir"/29u "reste | est", 33u "bifurcation | les", 51–52m* **246b** *15–19m* **249b** *46–51m* **250b** *42–44m*✍*/43–44m* **253a** *9–11m* **256b** *46–47m* **267b** *24–27m* **304b** *35–38m* **347b** *2–4m/w* is this not common character of Rabbits? **349a** *49–52m* **349b** *55u "Mais | terriers"* **350b** *4u "ne | terre", 46u "queue | dessus"* **351a** *43–44u "une | joues"* **351b** *8u "ne | terriers", 37u "un | sous"* **352a** *17u "ne | terriers"* **387b** *48–50m* **390a** *15–18m, 23–24u "canines | défences"* **391a** *31–33m/w* Ro◗ Q✍, *44–46m/44u "oreilles", 44u "très pointues"* **391b** *1u "Siam", 2u "Guinée"* **410b** *17–19m* **412a** *23–24m* **414a** *12–22m/15u "la | membres"* **421b** *14–19m* **425a** *32–36m/33–34*Q✍ **427b** *5u*✍ **429b** *15–17m* **433a** *46–48m* **434b** *38–40m, 44–50m* **435a** *40–47m* **437a** *3–6m, 12–13m, 19–25m/20u "envoyé | Sumatra"/21u "à | voisine"* **438b** *53–55m* **445a** *22–27m/23w* Horns *36–38m* **450a** *22–25m* **452a** *37–38m/w* female hornless **453a** *10–13m/w* hornless **453b** *53m* **454a** ✏ *42–43m/43u "Corine"* **455a** *27–28u "brosses | pouce", 38u "brosses | larmiers", 37–39m/w* Horns smaller **455b** *31u "celles | minces"/w* Horns smaller *32u "les | corine"/w*✏ p454 **457b** *28–30m/29u "dans | seulement"/w* 17 species **466b** *28–33m/30u "dans | sexes"/w* 2 species **468a** *30–34m, 44–45u "existant | seulement"* **470a** *3–7m/4u "couleur | généralement"/w* Hornless **470b** *30–34m/32–33u*↔*/w* Hornless **471a** *3–4u/m/w* 1 species **471b** *12–13m, 41–42u "quelquefois | femelles"* **473b** *18–19u "Cornes | sexes"* **476a** *54–55m/w* Hornless smaller **477b** *42–44m* **480a** *45–47m* **481a** *32–34m* **482b** *34–37m/34–35u "les | uniformes"* **483a** *31–35m, 47–50m/48u "qu'en | étant", wb* x differ in sexes & abortive in some vars. **483b** *17u "Point | temps"* **485a** *12–15m, 23–24m* **485b** *wb* 10 varieties in world **487a** *43–46m* **487b** *33–37m/34–35u "des | mâles"* **488b** *25–27m* **491a** *8–21m, 45–48m, wb* 8 vars with subvars. no particular account of French vars. **492a** *3–7m* **493a** *13–17m* **498b** *30–32m* **499b** *19–21m, 27–29m* **500a** *10–12m, 12–14m, 24–26m, 30–31m, 33–40m* **503a** *2w* Holland *wb* 16 French vars of which one said to be introduced from Holland – some of these vars. have sub-vars. and there is appearance of truth about whole account. **503b** *42–47m* **504b** *3–12m, 17–20m, 29–31m, 41–45m* **505a** *20–26m*

DEVAY, Francis *Du danger des mariages consanguins* 2nd edn; Paris; Victor Masson; 1862 [CUL]
beh, br, he, mn, pat, t, v

NB p97 Close interbreeding cause of mutants?
p103 Albinism very unsightly inheritance
p116 correlation of Deafs & Blinds – Cats
see Boudin p125 Deaf-mutes
p141 Ohio laws against marriage of cousins
Q✍

97 *24–28m/25–26*Q✍, *wb* Fish & Dogs are **103** *7–8m/8u, 11–18m* **117** *26–28m* **119** *17–20m* **125** *21–24m/7–24w* if true cause of variability **141** *21–26m/23*Q **142** *3–11m*

A DICTIONARY of chemistry compiled by A. Ure; London; Thomas Tegg; 1823 [CUL, pre-B, S]
che

NB1 *¢¢*
Mem 1880 Assuming our well water to contain 15gr of Hard ♣ Matter per gallon (some water contains 20) it would require 20gr (say 21gr) or ↑ sample to gallon to precipitate the Lime – It is said that oxalic acid is poisonous when 2 or 3 drachms (ie 60 x 2 or 3) are taken.
NB2 *¢¢*

ix *28–29u "Evaporation|dew"* **xi** *5–9m* **74a** *10c "by"/10–59w* carb of amm of shops carb A 55 Amm 30 Water 15 **75a** *wt* Nitric acid 731/3 262/3 nitrogen *8–46w* Org carb of am 56 carbon & 43 ammonia *wb* Amm 82 nitrogen 17.6 hydrogen **75b** *49u*↔ **80a** *59u "= 4.5"* **157a** *39u "17.64"* **385b** *9m/u "16° colder"* **386a** *44–46m* **386b** *43–46m* **387a** *25–39w* swandown best substance **387b** *36–39m, 40u "Charcoal|rust", 42–43m* **578** *wt¢¢* **582a** *wt* Ammon. a.–Chrom. a *10m♦, 11m, 12m, 14m, 15m, 16m, 17m, 18m, 19m, 20m, 21m, 22m, 23m, 24m, 25m, 27m♦, 28m♦* **584a** *2–26m, 45–50m* **587a** *26–29w/35–36w/52w/57–58w/64w ⟨weights of meteors⟩* **587b** *3w/4w/7w/19–20m/w/24–25w/34–35w/37–38w/41w/45w/51w/55w/60w ⟨weights of meteors⟩* **588a** *4–5w/12w/16–17w♦/22w/31w/36w/54w ⟨weights of meteors⟩* **806a** *17–18w¢¢, 19m, 30m, 37m* **806b** *18m* **807** *zb* **810** *wb* 100 = 180 **811** *table divided by red and blue vertical lines, wb* x/x/x/x✍ **814** *4–10w¢¢*

A DICTIONARY of chemistry compiled by H. Watts, 5 vols. & suppl.; 2nd edn; London; Longmans, Green & Co.; 1871–1872 [Down]
che, phy, tm

vol. 1, 118 *33w¢¢* **125** *wt* Morphine **591** *5–7m* **727** *28–30m/29u "1/1000"* **781** *15–26m* **866** *41–46m, 54–62m* **922** *36m*

vol. 2, 21 *56–64m* **639** *11–13w* Albumin & Oxygen *60–64m/62u "homogeneous substance"* **640** *30–37m/32–33u "albumin|composition"* **643** *47–49m* **829** *15–17m (Liebig)*

vol. 3, 721 *28–33m, 55–60m*

vol. 4, 199 *57–60m/60u "and|acids"/w* I used best of common **730** *3–7m*

vol. 5, 349 *37–40m* **950** *16–33w* the products of organic ● which have played their part in the animal organisation *20–21u "the|oxidation"* **1016** *1–6m, 18–21m* **1019** *5–8m* **1020** *65–66m* **1021** *1–7m*
supplement, 974 *4–13m*

A DICTIONARY of the English language compiled by S. Johnson, 2 vols.; 4th edn; London; W. Strahan; 1770 [Down, S of Josiah Wedgwood]

DICTIONARY of the Spanish and English languages compiled by Newman & Barrett; 5th edn, vol. 1, Spanish–English; London; Longman, Rees & Co.; 1831 [CUL, pre-B]

NB rebotar to rivet; chiquechaque, a Sawyer **75** *12–17m, 60–62w* rummage **84** *wt* nasty, narky **446** *30–32m*

DICTIONNAIRE classique d'histoire naturelle vols. 1–17; Paris; Rey & Gravier; 1822–1831 [Down, pre-B, on B, S in vol. 1]
beh, gd, sx, tm, v

vol. 1, 17b *17–22m/19–20u "Celle|analogue"* **323a** *52u "Aurifera", wb* no Gymnoflora. **323b** *wt* 1815. *3u "Lepas", 4–9m* **324a** *16m, 20m, 28m, 32m*

vol. 2, 145a *11–15m/15u "Balanus"* **146a** *45–48m* **451a** *5–22m, 13–15m, 23–25m*

vol. 3 SB Article Chameau; 450 Nothing; Balancement; Bones & Hair correlation; But see the references to "Anatomie" & "Armes"
97a *10–14m* **98a** *9–13m/10u "bifurcus"* **376b** *39u "au|mai", 41–43m, wb* males an interval of eight mnths **447b** *18–21m* **448b** *28–33m* **450a** *19–21m, 21–26m/w* In Brompton○ Dog reverse *49–52m, 50–54m* **451a** *52–54m* **451b** *6–9m, 24u "deux|garrot"* **452b** *20–23m, wb* 3 varieties **454a** *53u "Don|Theran"* **454b** *27–29m, 43–45m/43–44u "une|Alpaca", 50–54m* **455a** *1–6m*

vol. 4, 8a *18–24m (Cuvier)*

vol. 5 SB 274 on Cyprinus; 277 on varieties of Gold Fish –
118a *14–16m, 17–18m, 24–25m, 28–32m, 34–41m, 43–47m* **261b** *1–5m/3u*↔ **262** *1–5m* **274a**

9u "guère que" **274b** *21–27m* **275a** *49–52m* **276b** *27–40m, 47–54m* **277a** *2–10m, 8–10m, 14m/u "une grosse", 20–43m/31–33m* **277b** *18–20m, 46–47m* **278a** *3–5m, 8–9m*

vol. 7 SB 499. frog introduced from Madagascar into Mauritius

120a *17–21m, 47–49m* **120b** *5–9m* **121b** *28u "quinze|queue", 35–39m/36w* Pte◗ **122a** *32–34m/32–33u*↔ **122b** *15u "une|retardé"/13–16m/*Q **137a** *24–25m* **487a** *26 "Greffe".w* read **488a** *24–29m* **499b** *46–54m*

vol. 8, 274a *29–32m, 31–34m, 33–34m, 36–37m* **324a** *17–18m* **329b** *23–24m* **336a** *30–54m* **405a** *29–31m, 34m/u "M.S.Ch.E."/wb* Kolreuter✍ refers to these **405b** *2–7m, 26–28w* Potato, Dahlia *28–38m/29–39m/29u "les espèces"* **406a** *7–17m, 39–40m* **406b** *4–8m, 8–21m, 43–47m/46u "ovules|avortés", 52–54m* **407b** *5–10m/??/7u "de structure"* **467b** *8–12m/w* teeth like points

vol. 9, 150a *48–53m* **151a** *9–16m/9–16m* **324a** *36–41m* **324b** *11–25m* **428a** *25–26u "seconde|mâchoires"*

vol. 10, 121a *3–6m (Buffon), 15–23m, 30–34m/31?/32u "entièrement"* **121b** *3–5w* only colour *34–36m, 37–38m* **492a** *wt* What direction did it arrive How many degrees of Longitude *30–32m* **569b** *33–43m*

vol. 12, 305a *43u "clitandre", wb* Preface **305b** *23–24x, wb* Preface *39–44m/w* explanation of differn. *48x/u "rétinacte", 50–54m/53?/u "Belardia"* **306a** *18–21m, 22–23u "il|loge"* **307a** *14–21m* **307b** *16–19m, 42–50m*

vol. 13 NB Lesson; 419 Sea Elephant Penny Encycl & Vries; 402 Stemmatope F. Cuvier & Gratton○
361a *22–26m* **361b** *14–20m, 21u "plages", 22u "entièrement découverte"* **402b** *40–43m* **418a** *45–54m/46–47u "à|amours"* **418b** *1–5m, 32–37w* Polygamy *39–41m* **419a** *13–14m/u*↔, *25–28m* **610a** *38–40m/38u "Rana Pipa"*

vol. 14, 10a *25–27m (Lamarck)* **10b** *48–51m* **131b** *29–30*Q

vol. 15, 18b *30–31u*↔, *33–34u "entièrement|verdâtre", 35u "roux", 36u "élevées"*

vol. 16, 195b *24–25u*↔ **194a** *45u*↔ **196a** *48u "Tetrao lagopus"* **vol. 17** ℘

DICTIONNAIRE raisonée, étymologique, synonymique et polyglotte des termes usités dans les sciences naturelles ed. A.J.L. Jourdan, 2 vols.; Paris; J.B. Baillière; 1834 [CUL, on B]

vol. 1, 286a *45–49m/47–48u "nom|Candolle", wb* Coelosperms **286b** *1–2m* **342a** *zb*

DICTIONNAIRE DES SCIENCES NATURELLES, Planches Paris; F.G. Levrault; 1816–1830 [CUL]
che, v

NB Vol with Conia 1818
Lépadiens *w* PL. 115, *fig. 3.w* x (2) *back of plate* 2 same size as B tulips in Brown – 2a good size for valve; all same size **Balanides** *⟨first plate⟩ wt* PL 116✍, *fig. 2.w* | largish *fig. 5.w* versicolor or Mitra colur. *back of plate* 1.– size of B. suleatum in Brown 4.– size of B. perforatum in Brown **Balanides** *⟨second plate⟩ wt* PL 117✍, *fig. 1.w* 3d size *fig. 4.w* 2d size

DILLWYN, Lewis Weston *A descriptive catalogue of recent shells arranged according to the Linnean method with particular attention to the synonyms* 2 vols.; London; John & Arthur Arch, Cornhill; 1817 [CUL, pre-B]
gd, v

vol. 1 SB ✍ *⟨CD copies out detailed summary of distinguishing features of the following 35 shells: Chiton, Lepas, Pholas, Mya, Solen, Tellina, Cardium, Mactra, Donax, Venus, Spondylus, Chama, Arca, Ostrea, Anomia, Mytilus, Pinna, Argonauta, Nautilus, Conus, Cypraea, Bulla, Voluta, Buccinum, Strombus, Murex, Trochus, Turbo, Helix, Nerita, Haliotis, Patella, Dentalium, Serpula, Teredo⟩*
⟨untranscribed w: CD writes "B", *meaning* "British"⟩
6 *25w* **8** *7w* **11** *6w, 20w* **12** *1w* **13** *11w* **14** *9w* not British *11w* not B *20w, 21–22u "interstices", 23w* **15** *3m, 4m/u "communis"/w* no *6m, 17w, 19w* (2) *37w* copied! *40u "and|f."/w* **16** *7w, 10–15w* (3) var of crenatus or balanoides *11w, 17–19m, 25w, 30–36w* (4) B. punctatus? –Yes *37–38u "substances|abundance"* **17** *6u "Lepas borealis"/→/wt* L. borealis *1w, 4–8w* is this Ch. Chthamalus○ *4–5w* (5) *19w, 20w* (6) *28u, 41–42m/41w, 42w* **7 18** *1m, 1–9w*◆ can this be Cranchii○ *16–18w* Cranchii○ *29u "narrow glove-like", 32w* (8) *35–36w, 37–39w* = sulcatus **19** *9m/u*✍ *"p. 101", 15u "striatus|Brit"/?*✍, *21–22m/21u "Cape|Bruguiere", 29w* not recognisable **20** *20–24w* amphitrite? var cupidus○ *wb* not to be recognised **21** *7–15c/6–10w* not to be recognized *19–22w* B. amphitrite? or idoneus? *32m/31–34m/w* this is curious **22** *11–14w* var of tint *27w*◆, *28–32w* var of tint *38w, wb* 9 **24** *zt, 1–8m, 21w* **25** *18–20!!* **26** *24–25?/u "Kurile Islands"* **27** *12w* **28** *25–27w* | *27m, 27–36m, 28m/w* 1806? *30–31w* 1815? **29**

DILLWYN

24w **30** *5w, 27w, 34m* **31** *11w, 13u "Montagu test"/w*✍ 1803 *22w, 22–23w* ● of Lamarck *25–26u "Ellis|557"* **32** *3–5w* var *11w* **33** *10w* Lithotrya, *12–14m/13u "p. 197", 25w, 30u "Seba"/28–30w* 1734–65 *29m/w* 1815 *30a "Poli."* 1791 *33u "membranacea"/w* 1808 **35** *7w* **36** *40w* **38** *1w, 6u "striatus", 26w* **40** *3w* **41** *10w* not B *14w* not B *17w* **42** *16w, 38w* **45** *24w, 26u "distorta"/w* Ligula *36w* **46** *8w, 21w, 30w* **47** *3w, 16w, 20u "Ligula prismatica", 29w, 32u "Ligula substriata"* **49** *19w, 22u "Mya pictorum"* **50** *25w, 29w* Mya ovalis **52** *16w* **55** *1w, 17w* **57** *11w* **58** *29w, 41w* **59** *32w* **60** *7w, 22w* **64** *24w* **65** *6w* **69** *30w* **70** *26w* **77** *24w* **79** *1–2w, 5u "Solen vespertinus"* **81** *25w, 28w* Tenuis **86** *10w, 22–23w* Pandora inequivalvis **89** *33w* **90** *10w, 14u "Tellina Laskeyi", 41w* **91** *11u "Tellina inaequistriata", 23w, 29u "Tellina squalida", 41w* **92** *30w* **94** *25w* **95** *12w* **96** *8w, 13u "Tellina polygona", 37w* **99** *1w, 18w, 39w* **100** *15w, 38w* **101** *2u "Tellina solidula", 21w* **102** *17w, 23u "Cardium discors"* **103** *27w, 33u "Cardium arcuatum"* **104** *10w, 25u "Cyclas cornea", 41w* **105** *5–6w* Cyclas lacustrus *15w, 18w* Cyclas amnica **113** *27w* **114** *24w, 40w* **116** *5w* **123** *12w* **127** *19w* **130** *30w* **131** *4w, 16w, 30w* **138** *3w, 8u "Cardium"/w* Edentula **304** *5w, 12u "Mya Pholedia"*

DIPPEL, Leopold *Das Microskop und seine Anwendung* 2nd part; Braunschweig; F. Vieweg und Sohn; 1872 [Down]

DIXIE, Florence *Across Patagonia* London; Richard Batty; 1880 [CUL, I]

DIXON, Edmund Saul *The dovecote and the aviary* London; John Murray; 1851 [CUL]
af, beh, cr, cs, phy, sl, sp, t, tm, v, wd

NB1 Read Willughby & Aldovrandi Latham
NB2 Columella 8/8 Ch.; & Pliny L10.53; & Varro 1X/2; & Aelian B3/15 Greek
Read Read Aldovrandi in Royal Soc
Willughby in Royal Soc translated by Ray
Read Latham Royal Soc.– Sloane Birds of Jamaica not in Royal.– Brisson Aves p437 Royal 1760
Read – Ray; Frisch some German Book mentioned by Riedel
Read – Albin Royal p428 1731–38
p57 –18 days – Cocks on nest at 2 oclock
SB1 Mr Dixon
How Carrier taught to cross the sea.–
p.165, p166 ♦ rather hard to accuse of Atheism because created – worthy of quoting – are you not open to same on account of feathered pigeon legs. – or even more or less feet – Can you show that you p.275 do not in this exalt "the idol nature in an
Turbit p77 wd be good to get.
Linn Syst. Nat (my copy) vol.2.769. vars of Pigeon. Read
⟨*over*⟩ p.6; p.11 to 184; p.237; p.247; p.428
SB2 ❑β
14 Pigeons feral in Norfolk Isld Q✍
88 Case of Phas. colchicus & versicolor in Q. Review 1850 – cross between the two Pavos Q✍
97 Some crosses Runt, Fan-tail & Nuns p110 Q
155 Blue Rocks do not like other Pigeons (Ch. 6/. p.156 Q
247 Guans very tame, but breed slowly
428 Every Goose domesticable

6 *10–12m, 26–32m* **7** *1–3m, 7–11m* **11** *22–27m* **12** *31–33m* **13** *6–8m* **14** *7–11m, 20–22m/Q* **15** *26–32m* **16** *11–14m* **17** *1–3m, 8–11m, 17–20m, 28–30m* **18** *22–25m* **20** *20–22m* **27** *25–27m* **33** *21–24m* **54** *26–28m/27u "five|old"* **55** *1–2m* **57** *5–10m, 12–13m* **58** *3–5m/3u "eighteen days"* **64** *4–8m/6–7u "These|eye", 10–12m* **70** *13–14m/13u "It|a"/14u "ever become"* **71** *1–3m* **72** *21–23m* **74** *3–6m/1–15w* no argument of what wd take place by caging *9–12m, 14–16m, 21–26m/17–27w* there is now little object in selecting new slight vars. **76** *1–13w* even if we admit several species; these must have altered. *29–32m/31w* no **77** *1–4m, 13–16m, 18–20m* **79** *20–22m, 26–27u "Short-faced"/?* **80** *27u "more"/24–27m/w* Geology!! **81** *23–26m, 28–30m* **82** *15u "the|be" "1637", 17u♠/18u♠/19u "Persian|Turkish", 19u "not"/17–24w* yet never feral **83** *13–15u/14–15m* **85** *10w* 7 *11w* 8 *12w* 9 *13w* 10 *14w* 11 *15w* 12 – p120 **87** *10–14m, 28–33m* **88** *2–6m, 9–12m, 17–20m/Q*✍ *(Blyth), 28–32m* **89** *5–6m, 10–17m, 19u "Willughby"/w* Date *22–23m/23–24u "than|six"* **90** *19–22m* **91** *2–4m, 11–17m, 20–24m, wb* It wd be worth to ascertain numbers in all the species in Brit. Mus. **92** *16–20m* **93** *6w* 1.31/2 *10w*✍ 11 *18m/w* 1.111/2 **94** *1–6m* **96** *11–13m/12u "second degree", 14–16m, 17–19m, 23–25m* **97** *18–21m, 22–25m, 27–29m, 30m* **98** *18–19m*✍*, 24–27m/26u "Runts|may"/w* var. **99** *26–27m, 29–32m* **100** *3–6m, 24u "are|black", 28–31w* 2 vars. & subvars. **102** *29–31m* **103** *4–6m, 22–24m, 29–32m/31–32u*↔ **106** *4–11m/4u "mottled", 27–28z*✍*, 33–34m* **107** *1–4m, 8–11m, 23m*✍*, 24–27m, 31u "Dutch|bill"* **108** *22–24m* **109** *1–3m* **110** *25–26m* **111** *14–16m, 29–32m* **115** *2–5m, 19–21m, 20–22m/w* No **117** *8–24m* **118** *4–10m, 9–13m, 13–16m, 17–23m* **119** *6–8m* **120** *25–28m* **122** *21–25m*

123 *2–5m/3u "very|them", 9–15m/w* Nothing about powting **126** *4–10m* **132** *22–31w* How the Seas? *27–32m* **133** *24–27m* **136** *16–23m* **137** *2–4m/1–15w* because direction not known or acquired but they probably cd guide themselves if this known *17–23m/?* **139** *14u "fleshy excrescences", 20–22m/21u "still|slim"* **140** *9–11m* **141** *7–9m, 11–12m, 26–29m* **142** *5–7m* **148** *17–19m, 21–24m, 26–28m* **152** *27–33m* **153** *1–4m, 13–14m* **155** *5–8m, 25–30m* **156** *10–15m, 16–19m, 24–27m/26u "attributed|Moore"* **157** *18–22m* **158** *1–3m* **159** *26–28m* **161** *wt* Bull-dogs wd not go wild *2–6m, 12–14m, 29–33m* **162** *29–32m* **163** *2–4m* **164** *25–29m, 31–33m* **165** *1–10m/3–6w* does Blyth say so *27–28m, wb* this ought to be considered a 4th species, if affines be a species.– **166** *2–6m/w* How close! *7–13m, 15–19m, 31–33m/w* I wish certain **167** *1–3m, 11–14m/13u "remarkable|struck", 25a "intermedia"* no. ● **168** *7–16m* **176** *1–5m* **184** *5–7m, 12–13m, 25–27m* **237** *6–11m* **247** *5–10m* **252** *17–18m* **428** *17–21m/*Q

DIXON, Edmund Saul *Ornamental and domestic poultry: their history and management* London; The Gardeners' Chronicle; 1848 [CUL, I]
beh, br, cs, ds, ex, gd, he, hy, mn, rd, sl, sp, sx, t, tm, v, wd, y

NB1 ◆
Though, perhaps or probably several of our domestic breeds may have descended from several wild stocks, yet I think others cannot probably have come from their crossing – on account of one absorbing the other & without systematic selection, the difficulty of making thus any true Breed.
NB2 x; xiv to end; p34; 48; 69–79; 83; 87; 90; 97; 101
p.188 good case of Hereditary accident with growth
Fox thinks Cochin, Spanish, German, Bantam originally distinct breeds
Geese p142.
SB1 p.103; 110✍; 112; 118–122; 125; 128; 137; 139; 146; 174; 183; 188; 196; 200; 202; 205; 251; 264; 273; 277; 281; 285, 6; 291, 2; 300; 305, 9
SB2 ☐β
p.314, p.200✍ Cross-bred Fowls sitting✍
p8 Peafowls fighting & preening their feathers
34 – The chicks of Norfolk & Cambridge Turkey different
48 Old Canada Geese wd not breed with Audubons, unless the young of same species whereas the young of same species wd
79 Guinea Fowl rolling strong eggs into Nest
87 Slight variation in China Goose
101 & 103 Contrast in Teal & Wigeon breeding in confinement
111 White Peafowl of inferior size
115 3 vars of China Goose (so the goose can vary)
118 Duck could fly in Columella's time Q✏
Mem ☞ Read all about Ducks
122 – Become feral in Marshes Q✍
137 Goose origin of – Apt to pair quite as widely with other species as own Q✍
139 Gander always white – – Prolificacy increased by high feeding
146 Barnacle Goose is increasing in power of breeding in confinement
183 Cocks not created in Aristotles time
202 Hybrids between Guinea-Fowls & Fowls NQ
◆ 253 Chickens of Spanish Fowls 264 of Dorkings 273 Cochin 277 Malays; 285; 287; 306; 309; 325 of Polands; 324 chicks of
273 Cockrels of Cochin do not show rudiment of tail feathers till oldish Q✏
325 Golden Polands partly webbed O✎ Q✏
326 Distinction of sex comes on late in Polands (true) Q✏
81 Peahen makes first advances to Cock

x *2–7m, 13–15m, 26–30m* **xi** *5–7m, 10–13m, 16–17m* **xii** *24–30m* **xiii** *wt* Look at the oxen of every different country of Europe – look at dogs of do – look at men – if their variations are denied – my work might be closed *1–12w* Mr Dixons opinion & Van Mons show permanence of varieties, it has same effect on them, which wild species has on naturalised, I know the feeling myself.– *12–16m* **xiv** *13–18m/9–20w* tell him about Bull-dogs **xix** *3m, 5m* **8** *11–13m, 14–17m/15u "frequently|other", 17–19m* **12** *3–9m, 8–12m* **34** *22–23m, 35–38m* **48** *20–22m* **49** *4–7m* **59** *35–38m* **60** *33–35m* **63** *3–8m, 18–20m* **66** *25–27m, 29–31m* **69** *18–20m, 27–28m* **72** *10m, 30–35m*✍ **76** *33–35m* **79** *7–9m* **83** *9–10m/10–11u "tubercle|neck", 24m/u "harsh|ceremonious", 34–37m* **84** *6–10m, 24–26m* **85** *16–17m, 35–36m* **87** *7–13m, 16–17m, 25u "clanging|trumpetings"* **88** *9–10m, 34–38m* **90** *21–24m* **97** *4–11m* **101** *2–3m, 18–21m* **103** *8–10m/w* contrast with Widgeon **110** *3–16w* Thinks original species now dead *22–24m* **111** *1–2m, 4–8m (Lamarck), 20–24m* **112** *11–16m* **113** *12–18m, 29–33m* **115** *1–6m, 9–11m, 12–13m* **118** *15–24m, 27–32m/*Q✏ **119** *5–7m* **120** *25–35m* **122** *18–36m/24–26w* NQ✏ **125** *17–19m, 29–31m/30–31*Q✍ **126** *6–18m* **127** *35–38m* **128** *24–39m (Audubon)* **136** *31–35m, 36"...* **137** *1–4m/*

Q✍/3...", *18–22m*, *23–27m* **139** *5–7m*, *13–15m* **142** *19–23m* **146** *3–9m* **150** *5–8m* **152** *19–23m*, *19–24m/20–21*Q✍ **173** *35–38m* **174** *11–12m*, *16–24m*, *35–37m* **176** *22–23m/23w* No *32–40m* **179** *17–18m*, *29–31m*, *30–32m* **183** *28–35m* **185** *29–36m*, *37–38m* **186** *23–27m* **187** *37–38m* **188** *15–21m*, *20–23m*, *22–26m/22u "grew"* **189** *21–25m* **190** *26–38m* **196** *29–34m* **197** *11–23m*, *35m* **199** *32–33m* **200** *1–5m*, *30–33m/*Q✍, *35–38m*, *wb* He does not appear to have any facts.– **201** *14–17m* **202** *17–21m/w* NQ *36–38m* **203** *1–3m/2u*✍ *"five | ears"*, *4w*✍ 1 *7w*✍ 2 *9–10w*✍ 6 **205** *23–27m* **247** *3–8m* **249** *5–7m*, *29–30m/w* pencilled & spangled **251** *wt* seem very upright – apt to jerk their heads *33–34m* **252** *1–3m* **253** *1–2m*, *8–16m* **254** *33–34m*, *wb* I saw Aug 55 an Andalusian Fowl all slate colour **255** *8–18m/w* Spanish Fowl *34u "blue | colour"* **264** *18–22m* **265** *17–20m* **273** *7–9m*, *14–18m*, *24–26m*, *33–35m* **275** *8–12m* **277** *36–38m* **281** *34–38m/*→ **285** *31–32m* **286** *29–31m* **287** *21–25m*, *31–33m*, *34–35m* **288** *14–18m* **289** *9–10m*, *18–20m* **291** *3–9m*, *33–34m* **292** *7–9m* **305** *26–28m* **306** *10–12m* **308** *16–20m/18u "Aldovrandi"*, *26u "Coral | Greys"* **309** *9–12m*, *36–38m* **310** *33–35m* **311** *21m* **312** *18–19m/?*, *26–29m*, *31–34m* **314** *20–23m*, *24–27m* **315** *9–13m* **316** *12–15m* **318** *9–12m*, *13–17m* **320** *5–8m/*Q **321** *16m*, *25–28m*, *30–34m* **323** *38m* **324** *18–20m/18u "white breasts"* **325** *20–23m/*Q✍, *26–28m*, *29–38m* **326** *8–12m*, *19–22m*, *33–36m* **327** *1–5m*✍ **332** *10–13m* **333** *28–33m* **342** *1–13m*

DIXON, Frederic *The geology and fossils of the Tertiary and Cretaceous formations of Sussex* London; R. & J.E. Taylor; 1850 [Down, I by R. Owen]

DOBELL, Horace *Lectures on the vestiges of disease* London; John Churchill; 1861 [Down, I] ℘

DODEL, Arnold *Die Kraushaar-Alge, Ulotrix zonata* Leipzig; Wilhelm Engelmann; 1876 [CUL]
fg, sx

NB 125; 126 I must allude to this
124 *12m*, *35–38m* **125** *24–32m/w* if the sexual zoospores do not copulate, yet they germinate **126** *2–4m*, *3–8m/3u "Pringsheim"*, *11–14m* **127** *28–31m*

DODEL, Arnold *Die neuere Schöpfungsgeschichte nach dem gegenwärtigen Stande der Naturwissenschaften* Leipzig; F.U. Brodhaus; 1875 [CUL, I]
sl, tm

ix *27m* **112** *wt* In Grey seedling a few hairs on the leaves, as a protection, may determine which out of a 1000 seedlings will survive *1–5m* **115** *21–22m*
℘

DOHERTY, Hugh *Philosophie organique: l'homme et la nature* Paris; Didier & Cie.; 1881 [Down] ℘

DOHRN, Anton *Fauna und Flora des Golfes von Neapel* 3. *Pantopoda* Leipzig; Wilhelm Engelmann; 1881 [Botany School] ℘

DOHRN, Anton *Untersuchungen über Bau und Entwickelung der Arthropoden* vol. 1; Leipzig; Wilhelm Engelmann; 1870 [Down, I]

DOLFUSS, Gustave *Principes de géologie transformiste* Paris; F. Sary; 1874 [Down, I]

DOMESTIC MEDICINE, a handbook London; Bell & Daldy; 1872 [Down] ℘

DONDERS, F.C. *On the anomalies of accommodation and refraction of the eye* trans. W.D. Moore; The New Sydenham Society; 1864 [CUL]

NB 573♦✏ 574
1 *9–10m*, *wb* 10
℘
573 *18–21m* **574** *6–17m*, *26–28m/27u "tension | accommodation"*, *32–35m*, *37–40m/38u "without"*

DONN, James *Hortus Cantabrigiensis* 10th edn, ed. J. Lindley; London; C. & J. Rivington; 1823 [CUL, pre-B, ED]
mhp, tm

facing 66 *w ⟨CD?⟩* NB Lobelia in Linnaeus is Syngenesia monogamia ✍ & Lindley says stigma with rings of hair wipes pollen out of anther in same manner as in that order
⟨many other markings, presumed to be by ED⟩

DONNEGAN, James *A new Greek and English lexicon* 3rd edn; London; Sipkin, Marshall & Co.; 1837 [Botany School, ED]

DOUGLAS, John William, & SCOTT, John *The British Hemiptera* London; The Ray Society; 1865 [Down] ℘

DOWNING, Andrew Jackson *The fruits and fruit trees of America* London; Wiley & Putnam; 1845 [CUL]
ad, cc, cs, ds, fg, gd, he, hy, no, oo, pat, phy, sl, sp, spo, sx, sy, t, tm, v, wd

NB1 262 Walnuts
NB2 Catalogue of Books at Beginning p. viii
SB1 Catalogue of Books p.viii; p.10 to 12; p55; 60, 9; 75; 106; 115; 116, 9; 124; 130, 4; 139; 150, 3, 6, 8; 161; 171; 176; 184; 192; 195, 6, 8
Does Thompson give origin of Fruit Varieties D It is important as showing what in small things makes variation. is the sporting from true kind, when grafted.
202; 210; 215, 6; 220; 248; 250; 252, 4, 6, 9; 260, 3, 5; 278; 280, 4; 304, 7; 310, 12, 17; 317, 29; 330; 340; 356, 8; 366; 379; 396, 99; 419, 21, 22; 447, 8; 460 to→ 5
⟨*over*⟩
p.469; 470, 3♦ to 502; 517; 524, 25, 31; 542, 7; 553, 7
SB2 ❑β
p.5 On fruit-trees not being true, when grafted – <u>Good</u>
8. Facts against. Van M. viz old var. producing good plants
9. Crossed apple with fruit different at 2 ends
60. Every district has its fruit best adapted to it. (Mem: Chinese)
75. A marked American Apple
116 Italian tender apple – Several hardy ones mentioned in County of Wick & p.124 – Several sub-vars mentioned as (p.130) several Reinettes &c
150 Difference in hardiness in Almonds p473 in <u>Peaches</u> ⟨*u*✎⟩ p488 do Raspberries p.517 – Strawberries p.533
157 Hardy apricot
176 American Cherry p.184
✍ 192 Sporting Cherry
195. Cluster Cherry; a flower has several pistils & each produces a fruit – Flemish peculiar cherry
✍ 198 a var. of cherry liable to attack of insects more than other vars.
220 Mildew stops culture of Grapes in U.S
248 The wild native vines differ in quality p.253, p254, 259/p.261. do. vars of wild Hiccory
256 A cross between old world & new world Grape
270 Purple Plums much most attacked by certain diseases, never yellow vars. Many vars. of Plums raised in America p289, 292 & <u>Peaches</u> ⟨*u*✎⟩ p.469

284 – Siamese Plum – attached together on one stalk
304 Groups of Orleans Plums, when known to have descended – many plum hereditary
317 Pears not native, many vars – Pliny says ♣ heavy most only good when cooked
422 Washington, a very distinct pear discovered in Hedge
Γ✎ 462 The yellow disease originating with American Peaches <u>466</u> Yellow Peaches much most affected
470 Classification of Peaches by glands on leaves & serration & size of Flower–
476 Most Peaches either free or clingstones, but one is on same tree always either♦✍ both✍ cling or free xx scores of instances cd be given of this
492 Some Peaches very variable by seed, others constant & so it was with Plums
501 Smooth-skinned fruit destroyed by Curculios
☞ over
⟨*over*⟩
502. Nectarine from Peach & now true by seed
525 on selection turning Hautbois hermaphrodite
553 Northern Apples will not do in Southern States

viii *33–37m* **xi** *5m* **xii** *28–29m* **xiv** *27m* **1** *zb* **2** *5m/u "chance when"* **3** *22–24m, 37–42m* **4** *10–14m, 35–37m, 45–48m* **5** *16–22m, 19–29m/22u "to|of", 23–28m* **6** *15–19m, 24–25m, 33–35m, 46–48m* **7** *4–8m, 10–12m/11–12u "subdue|luxuriance", 16–17u "he|shortens"/w* this does not look like excess of food *18–20m/19u "vigour|trees", 29–31m, 36–42m/w* why more in America than in Europe **8** *6–8m, 9–10m, 40–45m* **9** *34–37m/w* are these species V. table *40–42m, 43–47m/w* any case of crossed species like this **10** *1–2m* **55** *1–2m/1u "single|moths"* **60** *5–9m/w* Is this selection or <u>adaptation</u>. latter I think **69** *16–17m, 27–28m* **75** *11–13m* **106** *4–5m* **115** *28–29m, 32–33m, 36–37m* **116** *36–37m* **119** *14–15m/w* sub-var **124** *23–24m* **130** *21–22m, 37–44w/wb* 4 Reinette; several Pearmain; several Russett; several Sweeting; p.139; Spitzburghs **134** *wt* **4** *11–13m* **139** *32–35m* **150** *4–9m* **151** *5–9m* **152** *20–23w* Study all. I have only skimmed **153** *43–45m* **154** ✎ *2–4m, 3u "have litle", 6u "Stone|bitter", 35–39m, 39–41m, 44u "adhering somewhat", 45u "Kernel sweet"* **155** ✎ *7u "Kernel bitter", 12–14m, 15u "compressed", 32u "Flesh separating"* **156** *12–16m*✎, *13–15m* **157** *24m, 31–35m, 38u*✎ **158** *19–21m* **161** *13–16m* **167** *1–3w* p9. Heart & Bigarrieu have been crossed by Knight **171** *25–29m* **176** *2–5m, 3–6m/6u "called"* **184** *10–15m/13–15w* Mem Graft **189** *18–21m*✎ **192** *6–11m* **193** *5–8m, 9–11m* **195** *1–5m, 39–40m, 41–42m*✎, *48m/*→✎ **196** *4–6m, 34–36m, 35–37m* **198** *16–17m, 24–26m* **200** *35–37m*✎ **202** *4–10m/w* I suppose only one original species & no possibility of Hybridising **204** *15–22w* vars in size of berries & bunch colour sweetness & time & fruiting *25–26m* **205** *7–9m* **210** *12–13m/13u "perhaps | hardiest"* **213** *10–11x/10u*✎ *"one fourth"* **215** *25–28m/27u "149 | considered"/ 28m*✎, *38m, 40–45u*± **216** *4m/u "Early", 20u "obovate"/22u "oblong"/24u*✎ *"oval"* **217** ✎ *14u "hangs", 33u "flavour | rate"* **220** *31–34m, 36–41m* **248** *25–36m* **250** *46–48m* **252** *34–38m/ 34u "Prince | describe"* **253** *2–7m, 23–24m/23–24u*↔ **254** *15–18m/24–28m/30–34m/1–37w* all this sporting must be in state of nature & seized by Selection as owing to little <u>general</u> cultivation of country **255** *1–3m, 35–37m* **256** *17–18m/17–18u "habit | here", 24–41w* Ascertain whether this comes under the Fox (V. Labrusca) p. 253 group or under some other (V. adlum or Prince), if so case of two species blended by crossing, though unintentionally crossed. *25–26w* p240 Old World Grape; a native Grape **257** *43–44m/ 44u*↔ **259** *1–12m* **260** *7–10m* **261** *18–21m/*Q✍ **263** *3–6m, 20–41w* the number of American plums really surprising *wb* x it cannot be extra food which makes so many new vars. of apples Peaches & plums in N. America – V. further on – climate or soil very favourable **265** *33–35m/*→, *39–46m* **266** *22–27m* **267** *48m* **270** *9–13m/7–21w* colour & constitution – is there not something about peaches & nectarines? *42–46m* **271** *29–30w* 1 **272** *22–23w* 2 *30–31w* 3 *41w* 4 **273** *11–12w* 5 **275** *7w* 6 *17w* 7 *27–28w* 8 *37–38w* 9 **276** ✎ *9–10m, 40–41m* **277** *21w* 10 *24–26m, 38w* 11 **278** *31w* 12 *32–33m*✎, *34–35m, 43–45m* **279** *3m/3–4u "has | shoots", 11–12m/12u/[...], 33w* 13 **280** *31–32w* 14 *34–40m, 34–39m* **282** *4–5w* 15 *33–34w* 16 **284** *15–19m/17w* 17 *31w* 18 *35–36m*✎ **285** *10m/u "handsome round", 22m* **287** *39–40w* 19 **289** *13–19m/13w* 20 *38w* 21 **291** *28–32m/28w* 22 **292** *19–20w* 23 *22–33m* **293** *5w* 24 *18w* 25 *24w* 26 *35w* 27 **296** *8–9w* 28 **299** *29–30w* 29 **300** *7m, 10w* 30 **301** *8–9w* 31 **302** *5–6w* 32 **303** *12w* 33 *37w* 34 **304** *6–38m/w* There have been several cases of fruits thus classed, where reproduction is known or inferred **305** *1–3m/w* 35 **307** *wt* I have noticed that most of the varieties differ in all respects as well as in fruits *1–2m* **309** *3–4w* 36 *13w* 37 *33w* 38 **310** *12–13m*✎, *41–45m* **312** *37–39m* **313** *36–38m/w* 39 **314** *7–8m*✎ **315** *16–17w* 40 **317** *24–26m, 39–46m, 46m* **329** *7–12m* **330** *1–6m* **340** *1–5m* **356** *19–25m* **358** *4–8m, 12–14m* **366** *33–38m* **379** *34–35m* **391** *37–46m* **396** *37–39m* **399** *8–9m* **415** *33–36m* **419** *3–6m/w* numerous cases such as this **421** *40–44m* **422** *13–15m, 13–16m, 19u*↔ **442** *19–25m* **447** *3–5m* **448** *39–41m* **460** *17–19m, 21–22m/22u "twenty years", 25u*♠ **461** *44–48m/*→ **462** *17–22m, 23–24m, 36u "established | question", 39–40m/43–44m/39–45w* new disease originated in America **463** *7–9m, 18–19m, 31–33m/32u "many | peach"* **465** *37–38m, 41–42m* **466** *15–17m, 20–22m, 23–25m* **469** *10–15m*✎, *11–13m, 17–22m, 26–28m/21–30w* almost certainly though probably derived from Eng. seeds *41–48m*✎ **470** *1–4m, 13–16m, wb* I rather doubt how far genealogical wd be best it wd be the most scientific classification of varieties even putting crosses on one side *wb* 4ss for p.475 <u>not</u> hereditary **473** *20–22m* **475** *20m, 36–41m, 36–41m*✎, *37w*✍ H. *40u*✎ *"absence | glands"* **476** *14–18m, 30–31w* many American kinds **478** *11–12m* **485** *32m*✍ **488** *29–32m/30u "garden | New"* **489** *10–11m/10m*✍, *23u "is | variety", 34–38m/34–38m*✎*/34m*✍ **492** *13–14m*✍*/11–19m/w* others contrast p489 p494+ **493** *1–5m* **494** *1–5m*✎, *2–5m/4–5m*✍, *7–9m/7u*✎ *"reniform", 15u*✎ *"without glands", 25–27m, 44–45m/45m*✍*/u "frequently | with"* **496** *21–22m*✍ **501** *12–14m, 15u*✍ *"smaller", 26–31m*✎, *27–29m, 33–35m/34u "all | soils", 39u*✍ *"Vol. 14, p.53"* **502** *23–26m*✎, *24–25m/24u "was | a", 36–38m*✎, *37m* **505** ✍ *19m, 35m, 37m* **510** *13–18m* **514** *21–23m* **517** *17–18m/w* V. p514 **523** *34–38m*✎ **524** *1–6m, 1–4m*✎, *11–13m, 26–30m*✎ **525** ✎ *⟨u*♠*⟩ 15–17m, 17–18m/ 18u, 19u, 21u, 22u, 23u, 33–47/37–40w* selection producing **526** *1w* N American **527** *22–23m, 22–23m*✎*/23u*↔, *28u "seeds | imbedded", 35–37m/36u "Fruit | size", 38u*↔ **528** *25w* Surinam **531** *7–8m, 7–8m*✎, *20–21m* **532** *2–3m/3m*✎*/2w* Pine *13–15m* **533** *3–5m* **534** *12–14w* English origin *37–40m*✎ **535** *15–17m* **542** *26–29m* **547** *41–42m* **553** *35–41m* **557** *17–21m*

DOWSON, J. *Erasmus Darwin: a lecture* London; 1861 [CUL.1900]

NF 6 Dec 1871

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DREHER, Enger *Der Darwinismus und seine Stellung in der Philosophie* Berlin; Hermann Peters; 1877 [Down, I]

DROUËT, Henri *Mollusques marins des îles Açores* Paris; Baillière; 1858 [CUL]
gd, sh, sp

NB 8 No Fresh-Water Shells
9 Many land-shells Endemic – very few Marine – peculiar
Species common to Mediterranean Canaries & Antilles
Much Sargasso weed
p26 2 sp of <u>Littorina</u>
8 *31–32m/u "il | Açores"* **9** *9–13m/12u "Antilles", 23u "139", 25u "75"/w* 5/75 new *29u "70 | 30", 30u "inédites"/31w* perhaps more endemic **11** *5–17m, 22–24m* **12** *5–6m* **13** *8u "nombre | doublé"* **24** *19–22m* **26** *3–6m/3m, 11–14m* **34** *17–20m*

DRYSDALE, John *The protoplasmic theory of life* London; Baillière, Tindall & Cox; 1874 [Down, I]

DUB, Julius *Kurze Darstellung der Lehre Darwin's* Stuttgart; E. Schweizerbart; 1870 [Down]

NB O/
℘

DU BOIS-REYMOND, Émil *Gedächtnissrede auf Johannes Müller* Berlin; Königliche Akademie der Wissenschaft; 1860 [Down]

DUCHENNE, Guillaume Benjamin *Mécanisme de la physionomie humaine, ou analyse électro-physiologique de l'expression des passions* Paris; Jules Renouard; 1862 [CUL (Plates at Down), S]
beh, h, phy, t, y

NB 2 woodcut of facial ⟨*rest* ◊⟩
SB ❐ℜ ✍
<u>Duchenne 8vo Edit</u>
Part I
p.31. showing absurdly how all examples created.
38 ♣ describes facial muscles continuous.
seem quite aware of many sources of error – Huxley says discovered muscles.
Part II
p8. eyebrows – move least under will
–29 separation of pyramidal & frontal
36, 43, 53 antagonism of sourcilier & frontal
75 triangular of lip
⟨*not CD*⟩ 180 On the pyramidal bringing down the brows
184 In a false laugh the zygomatic is alone contracted

Part 1, 5 *4u "1805"/4–5m, 6–7u "a composé"* **20** *15–18m* **22** *22–26m/w* only one muscle used!! **26** *17u 18–19m 18u* **29** *15–22m* **31** ⇑*12–1"..."/*⇑*10–6u±/* ⇑*11–2m* ⇑*12–9w*♦ (as in the many Limb movements of our limbs.) ⇑*11–6m/!/ w*♦ good to show how theory fails ⇑*5–1w*♦*/wb*♦ Praise his book. Well-known for other excellent Treatises, & add much undervalued, in my opinion, by other writers – a vast step in advance *wb*♦ After speaking of the movement of the limbs, he turns to the ph. of the face, & remarks **33** *20–22m* **34** *17–20m* **36** *10–12m* **38** *1–5m/w* All muscles continuous – says it is an illusion *25–26m* **39** *1–3m, 7–8m, 21–23m* **40** *11–14m* **42** *11–25m* **43** *1–34m, 17–18m/17–21w* in Laughter upper palpebrae, also; but these diurnal in young because associated with intense & painful attention. **47** *3m/w* eyes **51** *13–16m* **52** *10–12m/w* No. endurance **53** *7–10m* **59** *3–5m*

Part 2, 2 *fig.w (identifying little and great zygomatic)* **8** *15–17m* **16** *12–15m* **26** *2u "ces | gonfle"/w* by mere corrugator **27** *7–8m/8u*↔ **28** *5–8m* **29** *7–11m, 23–25m* **30** *5–8m* **31** *8–10m* **32** *3–6m/w* The contraction of orbiculars by themselves do not give look of Hardness **36** *7–9m* **43** *8–11m/3–16m/w* Judging by his experiments, the movement does seem entirely due to something which I suppose opposes sourcilier *18–21m, 23–26m* **44** *1–2m, 3–5m, 6–7m* **53** *1–3m* **56** *10–11m* **61** *21–24m* **62** *15–16m/15u "paupière inférieure", 17–22m/w* See Large Plates **63** *13–14m, 21–26m* **73** *16–18m* **75** *15u "lèvre", 16u "peu | avant", 20–21m* **76** *1–4m* **78** *10–13m* **85** *7–10m* **87** *22–25m* **89** *10–12m, 15–17m* **90** *6–13m* **91** *6–9m, 10–13m* **92** *23–27m* **104** *22–24m* **105** *1–3m* **106** *3–6m, 26–27m* **107** *21–23m* **176** *23–26m/w* the eyes being open to see **180** *14–21m* **184** *13–17m*

DUFRÉNOY, Pierre Armand, and ÉLIE DE BEAUMONT, Jean Baptiste Armand Léonce *Mémoires pour servir à une description géologique de la France* 4 vols.; Paris; F.G. Levrault; 1836 [CUL (vols. 3 and 4 only)]
geo, mi, se, t, ti, ve

vol. 3 SF1 ♦
There appears to me great force in De Beaumont opposition to lava basalts (which certainly have been most fluid) stretching into wide sheets at inclination as great or narrow streams of lava on planches of cones –

p.255. says <u>superficial</u> basalts of Auvergne resemble those of submarine at Teneriffe ?? forgets <u>flatness of bottom of sea</u>–

DUFRÉNOY & BEAUMONT

p.254. Proofs of recent elevation at Canary Islds –

⟨*over*⟩

p256 M. Babbage says part of crust, when volcanic forces have acted most likely to be elevated –

With respect (p257 &c) to thinning out of lava, round craters of elevation, not at all satisfactorily explained

It is very foolish giving one theory to any craters of elevation –

States that beds thicken towards source –

are strata upset at Cantal? Yes–

The foundation of Theory original explosion

Says Vesuvius &c all active volcanos put out of the question by both parties. C. Prevost p.315 Bull. Soc

SF2 Are the lower trachytes of M. Dore subaqueous?

p.241. Cantal different streams, unequal contradiction to first statement

Good god leaves out the Sea

Says Basalt must have had greater fluidity – Which agrees with supposition of being under water –

p.243. Basalt Terrestrial

p.246 Cause of no cones subaqueous Good.

⟨*over*⟩

Is it certain Basaltic platforms lavas of Ccantal flowed in air?

Is Cantal perfect crater

is basalt so uniform

He himself slightly contradicts himself on latter point.

His rigid comparison with Etna alone most unsophisticated

p.217 important on inclination of lava without becoming basaltic

243 *15–22m/19u "plaines|plateaux"* **246** *12–19m* **287** *18–23m* **288** *21–26m* **291** *1–8m* **295** *15–19m* **302** *22–24m, 25–28m* **303** *1–2m* **309** *zt*

vol. 4, SB1 ⟨*6 numbered pages*⟩

1

Élie de Beaumont Recherches sur les Terrains volcaniques des deux-Siciles

✍ Vol. IV. Memoires pour servir a une description geologique de la France

p57 M.G. Rose first published fact that (Annales des Mines 3° Tome viii p3) ♣ lavas of Etna✍ Labrador Pyroxenes & some peridodt, fer Titane✍

also Stromboli & some streams in Auvergne ✍ have lava of same constitution

p95 as far as argument has yet gone, no proofs of the ancient lava being ancient –

✍ N.B. though no proofs every one seems to consider they are ancient – & therefore all this argument about small quantity of recent ejections trifling

p98 says the successive ejections only tend to make cone of Etna L° of 8.– or rather ♣ uniformly less than Central gibbosity – p.97 compare it with ♣ volcanos – ??

✍ seems to leave out of question case of all eruption being from centre

♣

2 ⟨*top line* ◇⟩

can scarcely doubt Ascension○ a ♣ cone if eruptive, but no proofs

⟨*part* ✍⟩ The whole argument appears to me founded on assumption that eruptions must always have ♣ proceeded from the same points as they now proceed.–

p.102 Theory of Etna given in few words

p103. dike theory, p115, p116 clearly given

p.106 matter thrown applicable to separate volcanos in Cordillera

p.118 – Theory well given of Etna: ask will it not explain domes of Trachyte

p331 ⟨*he means 131 – text erroneously has 331*⟩ dike ought to incline ♣ outwards in Val del Bove ✍ if the strata had been originally nearly horizontal

p331. parallel Bands of cellular rocks in dikes from stretching ✍ – theory of Keihan's dike.–

p133 Etna dikes are often accompanied by faults – how are Cordillera dikes? ✍ in this respect? ✏ great difference in formation ✍ of the kinds of dikes

3

p.132, some dikes join like roots to streams.–

*| Dikes generally run to ENE & therefore the elevation (cause of them) does not tend to form "noyau centraux

p137 Valle del Bove like the Taoro in Teneriffe✍

p141 argue badly against cavity under Etna 142 – then argues fluid near surface, & hence eboulement of Val del Bove; & hence elevation of noyau centraux (non sequitur)

p144 are not centres of elevation, now all given up (see Bull. Soc) No✍ are they not all Eboulement.–

p.145 Wishes now to consider dikes as mere feeders of ancient lavas

✍ & forgets by his own argument they show elevation.–

4

p.149 argues that dike T the union not minutely ●; viz thickness at point of junction; coarseness of lapilli at spot

✍ the loss of parallelisms ♣ which he says would surely happen if streams hot flowed over great slope, rests on supposition of lower cones being points of eruption instead of solely upper ones.– ♣, is their ♣ breadth ♣ is a quality so explained

p151 Volcanic cones are generally from 18° to 40° in inclination

p158 the argument of gibbosity from his own showing here, may be invalidated because this is tending to form two kinds of slopes, where ♣ everything takes place from one point.

◊

p161 –Talus depends on form of fragments ✍ & is the same in air & under still water ! good.–

5

p161 – curious error repeated at 182 in reasoning could not have been formed beneath the sea because they are recent –? Perhaps they overlie Tertiary strata??

✍ Gradual elevation of the slope would exactly counterbalance the decrease of slope from the thicknening of the end lava stream at bottom of cone.–

✍ There is a fallacy (165 166) in arguing as if Val del Bove✏ was entirely formed from loose matter & not partly from lava

p182 says streams have great horizontal extension – how ascertained – ✍ by section at head of valley

p.188 seems to consider ♣ elevation of Etna quite sudden

p.do✍ line of elevation in Etna – not true "crater of elevation"

6

p191 considers Val del Bove engulfed like Papandugong.–

192 considers subsidence of Val del Bove like the pits formed on the crevasses in Etna – ♣

193. thinks elevation sudden because of discordance between ancient & more modern lava.– N.B. part must have been gradual whether dikes point to centre or not

194. Think it was so because subsidence probably sudden why was it not for collection of gaz

✍ De Beaumont talks of the play of the fragments on Etna excellently expressed p.116✏

✍ Etna must consist of two volcanic hi✂ from the point of eruption having changed & the older part dislocated & inclination of beds – added to from distension.–

SB2 Dufrenoy

p.286. Somma extensive 26° strata 23°–30°

349. Tuft of pumice Siliceous infiltration Pompeii

354 soda in Vesuvian formations potash in Volcano of Camp-Phlegreens Read Naples geology in Lyell

356 Trachyte first, Somma beds 2 Trachy 3. Veins lava of Ischia Vesuvius & Mt Nuovo

⟨*over*⟩

p.361.– I conclude when the great eruption of Vesuvius took place, there was accumulation of Pumice & Trachyte Matter in Upper part of Volcano – Somma being base of ancient great cone, the summit of which was trachyte. If Teneriffe fell & was then then blown out, first great eruption would be trachyty & the central one might be basaltic like flank– Study Lyell – The tuft on Somma shows central trachyte mass.–

p374. Lava streams diffuse composition or surface – in body –

⟨*over*⟩

p.382. Feldspar & Albite not ♣ in Lava! ∴ little Silex

Compare the Analyses of the substances from upper & middle part of stream p372

112 *12–15m* **131** *26–28m* **173, 174** *⟨pages cut and restuck⟩* **175** *wt ⟨CD transcribes part of p. 174⟩* **178** *12–15m* **183** *21–27m* **191** *19–20m* **272** *15–18m* **371** *1–8m*

DUHAMEL DU MONCEAU, Henri Louis *Traité des arbres* 2 vols.; Paris; H.L. Guérin & L.F. Delatour; 1755 [CUL, pre-B]

vol. 2, 233 *21–22m/21u "racines | endroits"*

DUMONT, Léon A. *Haeckel et la théorie de l'évolution en Allemagne* Paris; Germer Baillière; 1873 [CUL]

NB 15
7 *2–5z* **15** *12–16m, 26–27m*

DUMONT, Léon A. *Haeckel et la théorie de l'évolution en Allemagne* Paris; Germer Baillière; 1873 [Down] ℘

DUNCAN, Andrew *The Edinburgh new dispensatory* Edinburgh; Bell & Bradfute; 1826 [CUL, pre-B, S Charles Darwin 1826] che

106 *25m, 27–33m/29u "pounds | grains", 39–41m, wb* Correct by Almanac *wb♦¢¢* **107** *10–12w¢¢, 11–14m/w* Correct by Almanac **110** *wt¢¢* **111** *wt* 8750 = 1 Pint of distilled water ie 1/8 of 10lb or 70,000 ↕*w*✍ Penny Encyclop says 280 grains ↕*w*✍ Mr Baxter says 1 fluid oz of distilled water at 60F certainly contains 437.5 gr. apothecaries or

DUNCAN, A.
Fl oz; *¢¢, wb* correct I do not doubt x 437.5 x ● Almanac *wb*✍ 1 fluid oz contains 455.77 grains 480 grains

DUNCAN, James Matthews *Fecundity, fertility, sterility and allied topics* Edinburgh; Adam & Charles Black; 1871 [CUL, I]
beh, br, ds, no, sx, t, v, y

SB ✏
53 Variation of weight of infant according to age of mother
59 of length of do according to do.
100 on Twins produced chiefly by women between 25–29 years old.
252 on ages at which women may marry & produce only Malthusian numbers of children
NB 53; 59; 64; 100 Summary on Twins; 262; 334 Important Descent; 382 do. Death of males

53 *7–15m* **59** *8–12m* **64** *14–24m* **100** *18–23m* **262** *25–30m (Malthus)* **297** *23m* **302** *6–11m* **334** *13–21m* **382** *24–25m*

DUNCAN, John Shute *Analogies of organized beings* Oxford; S. Collingwood; 1831 [Down, on B, I to Lord Widmouth]

NB 54
54 *25–28m*

DUPONT, Edouard *L'Homme pendant les ages de la pierre* Bruxelles; Macquardt & Cie.; 1871 [Down]

45 *5–11m, 16–24m*

DU PREL, Karl Freiherr *Der Kampf ums Dasein am Himmell* Berlin; Denike; 1874 [Down] 2nd edn; 1876 [Down]

DU PREL, Karl Freiherr *Die Planetenbewohner und die Nebularhypothese* Leipzig; Ernst Günther; 1880 [Down] ℘

DU PREL, Karl Freiherr *Psychologie der Lyrik* Leipzig; Ernst Günther; 1880 [Down] ℘

DURAND, Jean Pierre de Gros *Essais de physiologie philosophique* Paris; Germer Baillière; 1866 [Down, I]

NB O/

DURAND, Jean Pierre de Gros *Les origines animales de l'homme éclairées par la physiolgie et l'anatomie comparatives* Paris; Baillière; 1871 [CUL]
ig, phy, tm

NB 32; 88; 138 Eyes imperfect Helmholtz; 90; 93; 138 Lamentin, 141 Hallotherium allied to; ◆ 137 Steenstrup on Sole & Turbit **SB** 88; 158 on Eyes imperfect; 93 The hinder legs of Lamantin subserve as tail 141 on gradation in structure of Talpa, with figure of Humerus

43 *31c*✍ *"pas"* **64** *16w*✍ qui **88** *7–12m/w* Does this apply to normal organ p.332 **90** *18–25m* **91** *9–10m* **92** *26u/x¢* **93** *5u "queue anatomique", 6u "résidu | destitué"* **129** *6m/w ⟨refs. to figs.⟩*✍ **130** *10a/w, 12a/w ⟨refs. to figs.⟩*✍ **131** *1a/w, 2a/w, 7a/w ⟨refs. to figs.⟩*✍ **132** *4a/w, 5a/w ⟨refs. to figs.⟩*✍ **137** *10–14m*◆ **138** *11–14m* **141** *19–25m* **144** *28–32m* **158** *1–6m*

DUTROCHET, René-Joachim Henri *Mémoires pour servir à l'histoire anatomique et physiologique des végétaux et des animaux* Paris; J.B. Baillière; 1837 [Botany School]

DUVAL, Joseph *Histoire du pêcher et sa culture* Paris; De Roret; 1850 [CUL]

NB Nothing

DUVAL, Joseph *Histoire du poirier (Pyms sylvestris)* Paris; De Roret; 1849 [CUL]
phy, wd

NB ✍
p.2 Certain Pears known to have been wild seedlings
✏ 32 p41 p47◆✍
Two Pears which do not take well on Quince stock
2a *61–64m* **2b** *16–20m, 44–57m, 59–64m* **5a** *49–52m* **32a** *31–39m* **41b** *4–12m* **47a** *32–41m* **48a** *22–30z*

DUVAL, Joseph *Histoire du pommier et sa culture* Paris; De Roret; 1852 [CUL]
beh, wd

NB O/
2a *2–8m, 57–59m, 57–64m/w* origin probably of orchards

EATON, John Matthews *A treatise on the art of breeding and managing tame, domesticated and fancy pigeons* London; the Author; 1852 [CUL]
beh, br, cs, em, f, he, phy, sl, t, ti, tm, v, y

NF1 Annals & Mag. vol. 19 1847 p.105 variability of Pigeons
NF2 Of noblemen &c p.vi coming <u>after</u> p88
NB1 p.62. Powter grand Passage; p.vi
NB2 Facility of ♣ crossing & Keeping Breeds pure – Value as Carriers –
It will be all important to find whether the vars. vary in the points, which characterise them as vars.
<u>Questions</u>
About fertility of crosses; Young Birds; Feathers in tail of Fan Tail.
NB3 First Part
p iv; p xiv; xvii Buy; p26; p34; p.40–50, 52–to; p.62
Second Part
p.iii to vi; p21 – Important about not telling qualities of Birds in nest.–; p.22; p32; p.37; 41
p.vi 2d part funny Passage
noblemen & gentlemen vi of Almond Tumbler ⟨*not CD*⟩
SB ❑β
Special facts on Pigeons <u>not</u> given always
x XV advice to young Fancier to keep to one kind (Ch I) 1/2 quoted S✎
40 Total length of Carrier Q
46 On tendency to degenerate in highest-bred breeds, ie selection not perfect S✎
49 Mayor on flight from Bury St Edmunds to London in 2 1/2 hours
51 Length of Pouter Q 65 Fashion varies
56 On ill effects of not intercrossing Pouters
p.v about changes effected during last 100 years Q
vi "the field is as still open for competition as it was 100 years ago" Q (on limit of variation)
9 Advice to keep on Goldfinches head S✎
x 11 Advice to young Fanciers not to try for too much Q S✎
11 on great variability in feather in Almond Tumbler – ✍ Selected first & now variable
21 on difficulty of judging young Tumblers
33 believe many of the shortest beaked birds perish in egg Q (Ch 6)
p.32 Beak may still be shortened S✎

Part 1, iv *4–6m* **xv** *wt* Hence many vars. *1–3m/2u "this | knowledge"/3u "Turke | Morocco"* **vi** *21–23m, 37–42m* **xvii** *4–9m, 23–24w*✍ This Yarrell has *27u*✍ *"1765"/...][..., 30...][..., 36m/w* I have Delamers work published by Routledge *40u "Bees | Rabbits"/→/36w* Buy it *wb*✍ A Treatise on Domestic Pigeons, London Printed for the Proprietors (no date) 2.6.old. lent me by Mr Evans – before 1809 for owner name has this **26** *26–29m* **34** *48–49w* 1765 **40** *wt* Did old Aegyptians keep Pigeons? *8–9m/8u "Tavernier", 11u "but | the", 22–26m/23u "fifteen", 33–35m* **41** *wt¢¢, 3–4m, 34–38m, 48m* **43** *28–30m/30u "of | half"* **44** *15–17m, 19–21m, 29–32m, 33–36m* **45** *18–23m* **46** *1–3m, 31–37m/32–33u "there | back"/34u "cast offs", 39–41m, 42–45m* **47** *1–5m* **49** *2–3m, 10–13w¢¢, 17–18m* **50** *8–14w* very different from now *27–28m/28u "Horseman | Cropper"* **51** *1–3m, 9–11m, 15w* in 1765 *21–22m/22u "wanting | quarter", 41w¢, 41–42u "mere | inches", 42u "seven | it", 43u "in | length", wb* Ask Mr Bult **52** *1–3m/1–4x✎/w* Marred○ *17–19m* **58** *1–4m, 9–19m/9–43w* The Horseman being thought by some to be a cross between Carrier & Powter *21w* Dutch Powter **59** *1u "English | miniature"* **61** *33–41m* **62** *20–24m, 35–38m* **63** *18x✎, 21–25m/22x✎* **64** *2u "jowlter | eye"/1–8m/w* Rollers? *33–34x✎, 39–42m* **65** *1–3m, 5–12m/8–9Q✍, 15–17x✎, 29–33m/31u "bald | beard", 40–44m* **66** *4–9m* **67** *1–2m* **68** *35–38m* **70** *5u "turned | duck", 7u "bending | swan", 8–11m/9u "his | bird", 29–30m* **71** *3–6m/4–5u "three | long", 5–7m, 22–27m/23u "Runts | Runt"/27u "have | half", 41–43m, 45–46m* **72** *11u "and | more", 12–14m, 23–26m* **73** *3u "blues"/wt* probably bars *1–2m, 5–7m, 40u "sometimes blue"* **74** *9u "six | feathers", 20u "there | blue", 21–23m* **75** *8–24m, 29–30m, 33–34m* **76** *2–4m* **77** *19–21m, 22–24m, 30–31m, 36–37m, 45–47m* **78** *wt¢¢, 11–12m/u "six | tail"/w* var. **81** *3–8m, 26–27m/2–28w* This shows variability in the tumbling fraternity *5u "though | this", 12–14m, 20w* Probably the same as Finnikin & Tumbler *23u "Dutch | Drager", 24–27m, 48–49m/49u "Archangel"* **82** *5–12m, 6–8"..."* **83** *4–11m, 51–56m, 51u "Antwerp | sharp", 52u "sharp | cunning"* **84** *1–4m/1u "Roman nose"* **86** *44–49m*

Part 2, iii *41–43m* **v** *46–56m/46–50m*♦*/47u "seven-eighths", wb* V. p.9xx **vi** *6–9m*Q✍*/6–7"...", 30–36m/x/"...", 49–51m* **8** *19–21m/14–21w* ie variable **9** *5–6m, 8–12m/xx/u "five-eighths", 13u "three quarters", 16–18m, 19–26m/"..."/20u "the | beak"* **10** *6–13m, 51m* **11** *3–6m/3–4"..."/*Q✍, *7–10m, 12–16m, 25–29m, 34–38m, 40–45m* **20** *50–51m* **21** *1–9m/6–8m* **22** *37–41m* **32** *50–57m* **33** *13–17m/w* Q Ch 6 **37** *47–55m* **41** *34–40m*

Part 3, ii *14–16m*

EATON, John Matthews *A treatise on the art of breeding and managing tame, domesticated, foreign and fancy pigeons* London; the Author; 1858; [CUL, bound with:]
MOORE, J. *Columbarinus, or the pigeon-house, being an introduction to a natural history of tame pigeons* London; J. Wilford; 1735 [pre-B]
beh, br, cs

NB p60 Pouter; carr p44 Carrier
Frontespiece Tumbler 100 Barb; Jacobin; Fantail; Turbit
SB 78 Q✍
86✍ Fashion goes in extremes with Fanciers.– Q✏
120♦ in Beards
Q✍ 145 Blue Tumbler bred from Splash Cock & Kite Hen see p.

78 *53–61m/55u "original Columbarian"* **79** *24–30m* **86** *43–55m, 57–60m* **120** *48–53m* **127** *42–45m* **145** *3–6m*

ECKER, Alexander *Die Anatomie des Frosches* 3 vols.; Braunschweig; F. Vieweg & Sohn; 1864–1882 [Down] ℘ *⟨some marks by FD⟩*

EDGEWORTH, Michael Packenham *Pollen* London; Hardwicke & Bogue; 1877 [Down]

EHRENBERG, Christian Gottfried *Mikrogeologische Studien* Berlin; K. Akademie dr Wissenschaften; 1873 [Down, I]

EHRENBERG, Christian Gottfried *Vorläufige Nachricht über das kleinste Leben im Weltmeer, an Südpol und in den Meeres-Tiefen* Berlin; L. Voss; 1844 [CUL, I in each part, S]
gd, geo, ve

Part 1, 3 *9m* **4** *13m, 31m* **5** *9m, 17m, 26m, 34m* **6** *1m, 21m* **7** *8m, 14m, 23m, 25–28m, 29m* **8** *9m* **10** *27m* **14** *17m* **15** *3m* **16** *13m, 15–16m, 31–36m (Darwin)* **18** *8m, 13m, 25m, 36m* **19** *8m, 32m*

Part 2, 12 *21a/cτ*

Part 3 title page *w* Nothing

Part 4 title page *w* Matter Dust

Part 5, 11 *32–34m*

Part 6 title page *w* Patagonia –Infusoria– B. Blanca – Pampas **10** *19w*✍ 25 **11** *15–19w* with some fragments of Infusoria **12** *14–16m/4–16w* volcanic character more clear & number of Infusoria increase each time **13** *13u/wτ* **14** *5u "verglühter", 25c "A", 26–32m/27c "B", 27m/wτ, 29m/wτ, 30m/wτ, 31m/w, 32u "8"w ⟨locations of species⟩, 33u τ, wb* land forms **15** *3w* though near *8u "Süsswasser", 9u "verschiedenen", 10–16m, 14m/w, 15m/w, 16w ⟨locations of species⟩, 25c*✍ *"A", 26–31m/29c*✍ *"B"/ 30m/27w* p90 *wb* p.175 **16** *wt* no. Infusoria *1–4m, 1m, 2m, 4m, 5–6w* 13 *7–9m/7u/wτ/9u/wτ* **19** *11–16m, 19–24m, 34–38m*♦

Part 10, 51 *8a/c∉*✍

part 11 title page *z* **333** *26m/26c/w∉* **339** *12a/c∉*✍ **359** *9–25m*

Part 12 title page *w* Nothing

EICHWALD, Eduard von *Geognostisch-palaeontologische Bemerkungen über die Halbinsel Mangischlak und die Aleutischen Inseln* St. Petersburg; Buchdruckerei der Kaiserlichen Akademie der Wissenschaft; 1871 [CUL] ℘

EIMER, Theodor *Untersuchungen über das Variiren der Maureidechse* Berlin; R. Stricker; 1881 [CUL, I]

204 *10m* **212** *10m* **219** *2m*

ÉLIE DE BEAUMONT, Jean Baptiste Armand Louis Léonce *Leçons de géologie pratique* Paris; P. Bertrand; 1845 [CUL]
beh, ch, geo

137 *11–17m* **140** *22–27m, 22–24u "terre| diminution", 26–29m, 27–30"..."* **141** *16w* Buildings *17–19m, 19–20u↔, 23–27m, 29–32m* **142** *1–7m, 2–3"..."* **143** *23–32m* **145** *23–32m* **148** *24–29m, 25–26u "permanence| végétale"* **149** *8–13m, 22–25m* **150** *1–5w* has changed very little *2–6m, 3u "l'an 451"* **152** *wt* He did make sections, & I shd thought may have been steeper *1–6m, 30–32m* **153** *1–4m* **160** *wt* Tumuli in many parts **164** *4–9m* **165** *1–11m, 17–22m* **168** *6–10m, 6–29w* I think earth-castings when they come to bottom of slope must be carried away **169** *21–25w* He forgets new Humus formed **182** *26–32m* **187** *29–33m* **189** *20m* **226** *29–32m*
℘

ÉLIE DE BEAUMONT, Jean Baptiste Armand Louis Léonce *Note sur les systèmes de montagnes les plus anciens de l'Europe* Paris; 1848 [CUL]

124 *17–29m*

EMERY, Carlo *Fauna und Flora des Golfes von Neapel 2. Fierasfer* Leipzig; Wilhelm Engelmann; 1880 [Botany School] ℘

ENCYCLOPAEDIE der Naturwissenschaften Breslau; Trewendt; 1879–1882 [Down] ℘

ENGELMANN, Wilhelm *Bibliotheca historico-naturalis* vol. 1; Leipzig; Wilhelm Engelmann; 1846 [Down]
gd, wd

NF *✍¢¢*
NB1 Any of Nillson in French?; 305 Is Nillson's Handbook in German or Swedish?– I think not; 367 Wagner on Geog Distrib of Mammals; Pritzel Thesaurus Literaturae Bot. 2.2 (in Athenaeum Club); Steudel Nomenclator Bot. 33 in Linn Soc.
NB2 Tidsshrift p133
Danish Tra. p57
p289 Vermischte Zoolog. includes domestic animals
Ancheria p749
Sardinia p157
p531; p.636; 73; 142
ix *11m/w¢✍, 12m* **38** *46m, wb* England & Amer p38 France p61 **48** *9m* **57** *51m* **61** *35m* **103** *17m* **133** *22m* **157** *49–53m* **240** *wt*● **303** *6m* **304** *3m/w* Meyer – got *45m* **311** *48m* **320** *31–34w* 1st edit about 1816 *36m (Cuvier), 38–39w* this is mine **338** *39w¢* **339** *43m/w* out of print **341** *39–47w/wb¢¢, 44–45u "1789–1813"* **429** *42m* **486** *31m* **527** *31–32m, 41–43m (F.L. Delaparte)* **531** *30u "R.|XXXIX"* **554** *3–7m* **749a** *19m* **754b** *5m* **785b** *44–48m*

ENTEN, Schwanen und Gänsezucht Ulm; Ebnerschen Buchhandlung; 1828 [CUL]
f, v, wd

NB p.25; 28,36; 78; 83; 87; 143; 144
SB ❑β
p25 Goose sometimes top-knot
p36 Wild Goose 10–12 Eggs p28 tame lays 13–18
p87 Tame Duck will lay 80–100 Eggs in year
p143 Details of Rearing wild Ducks in Sweden – Tiburtius reared them for 3 generations & they did not vary in least in taste or feather.

25 *12–14m 13u "selten isabellgelb" 14u "Straus"* **28** *⇑7–5m* **36** *⇑10–9m* **74** *1u "un"/?* **78** *⇑10u "wilde|Art"/!!* **79** *14u "Busch|Kopfe"/w* what *⇑10u "hängende", ⇑3–1m/⇑3u "China|Vaterland"* **83** *⇑4–1m/w/wb* one considers the handsomest tufted Ducks those, whose tufts are made of many little tufts. **87** *6–10m* **143** *13–15m/15–25w* Has reared & formed useful Ducks from wild Birds Q✍ **144** *5–10w* Have kept for 3 generations feathers & taste like wild Ducks

ERCOLANI, Giovanni Battista *Nuove ricerche sulla placenta nei pesci cartilaginosi e nei mammiferi e delle sue applicazioni alla tassonomia zoologica e all'antropogenia* Bologna; Gamberini & Parmeggiani; 1880 [CUL, I] ℘

ERCOLANI, Giovanni Battista *Sull'unità del tipo anatomico della placenta nei mammiferi e nell'umana specie e sull'unità fisiologica della nutrizione dei feti in tutti i vertebrati* Bologna; Gamberini e Parmeggiani; 1877 [CUL, I] ℘

ERICHSEN, John Eric *The science and art of surgery* 5th edn, 2 vols.; London; James Walton; 1869 [Down]

ERNEST, J.A. *Dictionary, Graecium lexicon* London; J. Rivington; 1816 [Botany School, pre-B, ED]

ERRERA, Léo *Sur la structure et les modes de fécondation des fleurs* Part 1; Gand; C. Annot-Braeckman; 1878 [CUL, I]
v

NB 212; 62, 65, 66 Cleistogamic Flowers; 70; 117; 144; 123; Plantago 170 variation passing from Entomoph into Anemophilism; 129 Table of terms; 133; 146 Index of terms; There is also much on variation of Pentstemon
62 *3–19m* **65** *5–25m* **66** *26–28m* **70** *12–24m* **84** *22u "à|guêpes", 24u "Linaria sriata"* **85** *4u* **111** *1–23m (Sprengel)* **122** *17m* **123** *5–17m, 18–21m* **124** *6–10m* **133** *5–21m* **135** *28–30m* **136** *16–27m* **154** *11–19m* **196** *22c "portaient"* **212** *24–31m* **213** *20–24m*

ESCHRICHT, Daniel Frederick, REINHARDT, Johannes Theodor and LILLJEBORG, Wilhelm *Recent memoirs on the Cetacea* ed. W.H. Flower; London; The Ray Society; 1866 [Down]

NB not read
57 *32u* **66** *13–17m, 22–24m/22u, 30–39z* **74** *6–9m* **78** *26–31m*

ESCHWEGE, Wilhelm Ludwig von *Beiträge zur Gebirgskunde Brasiliens* Berlin; G. Reimer; 1832 [CUL, on B]
gd, sh

NB 36 66 486 Shells at Bahia & St Pauls
The last chapter I have marked, but must be read again carefully
36 *6–12m/7u "aufgeschichtet"*
℘
469 *24–25m* **471** *5–7m* **472** *1–2m/u "Bergbau|getrieben"* **478** *7–9m* **479** *12m* **483** *1–11m* **484** *9u "Granitmassen"/9–16m/u "nichts"/15–16m* **486** *6–16m* **488** *9–13m, 34–38m*

ESPINAS, Alfred *Des sociétés animales; étude de psychologie comparée* Paris; Baillière; 1877 [CUL]

beh, co, in, oo, or, sl, t, ts, wd

SB ❑β
p14
47 Instinct of Aphides
54 Actions performed without distinct reasoning – good
✏ 196; Much on instinct
& the mental qualities of animals & individually on sexual selection, but I have not read all carefully.
p.300
✏ 305; 308; 317

⟨*over*⟩ ♦ ✏
Except in the coral instance I do not believe that either corporeal structure or mental ability are ♣ due ♣ to the preservation of single individuals
✍ I have never alluded to the very useful work of definition, but it seems to me that the term social ought to be confined to ♣ animals which are induced✏ to ♣ live together through mental attributes, independently of any physical bond, & if so corals &c cannot be said to be social even in the lowest degree, any more than the buds on the same tree.– but it is rather beyond my line of work, being too philosophic or ●
I have now read your work, but I have nothing particular to say
It seems an interesting & very valuable Work & you have been great adaptible in acquiring great knowledge from all sources. Every one alluding to the mental power & nature of animals wd be bound to study it./p54 As you hardly admit to principle of evolution we view all subjects from such widely differt points of view, that it is not surprising that we should often differ. Allow me to point out that you have unintentionally misrepresented me at p.47 I have not discussed the origin of the instinct of domesticity, & have only alluded to them with respect to the question whether the aphides have any advantage from giving to the ants the social○ instincts○ I shd have added differs from conscious

14 *2–5m* **47** *16–24m* **54** *14–31m* **55** *1–12m* **57** *7–17m* **196** *1–9m*✏ **300** *7–13m/w* fear makes cluster more together? **305** *1–8m*✏ **308** *1–3m*✏ **309** *wt* a Cat & a Dog brought up together will love one another *9–12m*✏, *21–23?*✏ **317** *8–12m*✏ **351** *12–18m*

EURIPIDES *Hecuba* Oxford; J. Vincent, H. Slater, J. Mawman, Deighton & Sons; 1836 [CULR, S Charles Darwin, Christ. Coll.]

⟨here and there, translations and paraphrases of text⟩

EYTON, Thomas Campbell *Osteologia Avium* 2 vols.; R. Hobson; Wellington, Salop; 1867 [Down]

FABRE, Jean-Henri Casimir *Souvenirs entomologiques, études sur l'instinct et les moeurs des insectes* Paris; Ch. Delagrave; 1879 [CUL, I, S]
beh, v

NB p122; p.129; p174; p.211; p241; 271, 2
SB ➾ 121 p.122 124 variation p.122 124 Instinct good; 129; 176–177 some variation of; 211 on finding way; 241; 318.
✏ 168 cutting off Antennae; 172 shutting up cell; 177 parallel case
title page *u* ⟨*author, title*⟩ **73** *26–27m* **121** *31–35m* **122** *wt* Gauchos killing by pitting○ *6–17m, 36m* **123** *19u "criquets | habituels", 36m* **124** *1–3m* **125** *32u "dernier siècle"* **126** *28u "guêpe"* **129** *33–36m* **168** *31–35m, wb* antennae or palpae when former cut off **169** *17–20m/19u "tous | palpes", 30–36m/→* **170** *2–5m/3–4u "six | oviscapte", 19–22m* **171** *34–36m* **172** *9–15m, 17–22m* **174** *2–13m* **176** *31–36m* **177** *1–4m, 14–22m, 25–31m* **211** *15–24m, 27–29m* **241** *25–32m, 33–35m* **262** *14–29m* **271** *21–28m, 32–35m* **272** *27–32m* **274** *w¢¢* **296** *18–26m* **297** *18–24m* **299** *26m* **311** *8–21m* **315** *30–36m* **318** *28–32m*

FAIVRE, Ernest *La Variabilité des espèces et ses limites* Paris; Germer Baillière; 1868 [CUL, I]
ct, em, f, he, phy, spo, sx, t, v

SA ⟨*pp. 12–13*⟩ □ℜ ✍
Dom. Animals
Faivre Var. des Espèces
♦✐ p. 44. various sports enumerated some good.–; p.100 on certain cult. plants which lose their character in certain sites
p71. for Pangenesis. on special action of poisons Cl. Bernard ♦✏
♦✎ p 111. Pangenesis on embryonic limb grafted & developing itself. p.132 do; p114 on permanence of new race of Datura Tatula obtained by Godron.
♦✏ 119 Cases of Reversion by seed.
155 vitality of pollen
✎ 112 good (on Canna)

7 *13–20m, 36–37m* **10** *36–37m/30–37w* Termites 8 forms!! **22** *2–9m* **23** *1–14w* or rather a state of Direct action Polymorphism *16–31m* **25** *36m* **44** *24–28m/26–27w* Sport *36–38m/w* Sport **45** *4–7m, 12–17m/w* Sport *37u "Carrière"/37–38m* **71** *35–38m* **90** *9–16m* **95** *27–35m* **100** *10–37m* **101** *2–18m* **102** *21–36w* yet has said before few ♣ natural races!! **103** *11–21m* **110** *33–35m, 36–37m* **111** *wt* Pangenesis *1–4m, 38m* **112** *1–6m/2u "membre anormal"/4u "cette | plan"/1–2w* Pan **114** *11–15m* **119** *9–16m* **132** *34–37m* **133** *10–17m* **141** *33–35m* **155** *12–14m, 25–28m, 36–37m* **156** *15–19m* **158** *15–18m, 16u "Balisiers", 16–19w* Canna Dict. class. **159** *9–11m, 19–24m, 26–30m* **177** *8–15m, 18–22m*

FALCONER, Hugh *Palaeontological memoirs* 2 vols.; London; Robert Hardwicke; 1868 [Down, I in vol. 1]
tm

vol. 1 NB 577 Canines; 581
xv *18m* **xvii** *16m, 18m, 20m, 28m*
℘
577 *24–25m/25u "canines | jaw"* **581** *33–40m*
vol. 2 ℘

FALCONER, Hugh *Report on the teak forests of the Tenasserim Provinces* Calcutta; F. Carbery; 1852 [Down, I]

NB 30 30 *11–22m, 25–31m* **31** *34–39m* **32** *20–24m* **33** *6–10m*

FARRAR, Frederic William *Chapters on language* London; Longmans, Green & Co.; 1865 [Down, I]
beh

NB Gesture language 104
104 *1–19m* **113** *w* ⟨*not CD*⟩

THE FARRIER and Naturalist edited by a member of the Zoological Society of London 3 vols.; London; Simpkin & Marshall; 1828–1830 [CUL, pre-B]
ch, sl, tm, wd

vol. 1 NB Those struck out read in Vol I; 338♦; 380♦; Q 452♦; 466 change in Wool in sheep; 469♦; 547♦ – Guinea-fowl on St Helena in 1588
338 *1–3m*/Q **380** *6–13m* **452** *wt* All Q *17u "the sorrel", 20–21m, 26–28m/26u "often"/27u "black | dark", 28u "often"*/Q *32m, 45m* **453** *1u "sorrel", 3–5m, 25u "tinctured | claret" "brown", 25–31→/31u "dappled", 39–41→* **455** *5u, 7–8m/7u "fallow", 10u "because | goes", 12u "thence | backed", 19–21m/19u "fallow | duns"/20u "faintly dappled", 40m* **456** *26–30m/w* Q colour **466** *32–41m* **467** *1–7m* **469** *33–35m* **547** *21–22m, 26–27u "pintados"*

vol. 2 NB Dog
♦ 151; 349; 365; 368; 379
Allude to Wilson Essay
151 *25–33m* **349** *26–31m* **365** *24–26m* **368** *10–14m* **379** *20–24m, 39m* **380** *7–12m*

vol. 3 NB ♦ 17; 115
Rabbit & Hare not crossing Q✍

17 *9–20m, wb* no selection by men **115** *16–25m*

FAUNA UND FLORA des Golfes von Neapel, Monografien 1–4 Leipzig; Wilhelm Engelmann; 1880–81 [Botany School] ℘

FAYRER, Joseph *The royal tiger of Bengal* London; J. & A. Churchill; 1875 [Down, I]

FENWICK, Samuel *The student's guide to medical diagnosis* 2nd edn; London; J. & A. Churchill; 1871 [Down, FD]

FERGUSON, George *Illustrated series of rare and prize poultry including comprehensive essays upon all classes of domestic fowl* G. Ferguson; Beaufort Library; 1854 [CUL]
af, beh, br, cc, cr, cs, dg, f, fg, he, hy, in, sl, sx, wd, y

NB I must be careful about trusting this man.– Mr Tegetmeier says not known as a Farrier. Mr Brent does not know, but says he offered to sell Coops & Aviaries – so must at least have kept Birds.–
Tegetmeier has commented The whole Book a pack of lies & compilations
SB1 ❐ℜ ♦✍
iv♦; iv; v♦; v; vi♦; p.v♦; vi
23; 27; 31; 32; 35; 49; 67*; 69*; 75, 75*; 82; 85♦; 91; 93; 108; 151; 162; 163
♦✍ see p. 27 to explain
✍ a good deal of remarks on Polish Spangled Cock & Hen; Cocks & Hens almost always <u>different</u> Spangling v. wild Hen which is I think barred
⟨✏; ♦✍⟩ Cuckoo Poland; Cocks & Hens almost always different from part Spangling & barring plannedO in Hens
SB2 317; 320; 333; 342
⟨✍; ♦✏⟩ Always put after Page names of Breeds (Shangae) (Game) &c; connect perhaps ♣ by dots .... (See p. 27); Clean well the pencil marks.–; Keep Book Clean.; Write smallish on one side, number your pages.
⟨*over*⟩
♦✍ →✎ Mr Norman put in name at top
171; 172 ♣; 176; 177; 186 ♦✍ Good example of Malays; 187; 192; 201; 206; 230; 254; 260; 262; 277; 281; 284 ♦ KissingO each other; 296 see Weight of Malays 297; 299; 302; 304♦; 305; 311; 313
⟨✍; ♦✏*]* Look at weights of Malays
over
SB3 ❑β ✍
p vi. no ancient selection Q✏
p. 23 Black-red Cock Shangai resembles game Q✏
– 27 on power of male Cochins in courting shy females
35 Shangai eggs granulated Q✏
49.– slowly feathered
75 Prefer breeding from bad bird of good pedigree to good bird with bad pedigree
83– experiments on interbreeding Spanish ♣ causing Degeneracy.
93 Grey Dorking like male X✎
108 about ascertaining & selecting flavour of flesh when killed ♣ preserve brother: with respect to neuter insects.– X✎
162 Fanciers select each point to excess. a little peculiarity ♣ valueless – a great more valuable or. – quote.– X✎
172 All birds more readily acquire than lose a peculiarity.– Polish Fowls heads very hereditary ✏ see Poultry Chronicle ✍ Easily grafted by a cross
186 O✎ Malay Hen 10 caudals – crow peculiar.– individual differences
⟨*over*⟩
192. Deist – believes of multiple origin Q✏
201 Hybrids with Pheasant – <u>Lies</u> ⟨*u.*✏⟩
285 on proportion of Male & Females – Males in excess.–
297 Eggs of Black Bantam different shape Q✏
302 Cuckoo Bantams Q✏
311 Highly-bred Birds – many eggs unproductive
313 – change of locality lessens injurious effects of interbreeding
317 Freemans Game stock degenerating from interbreeding

iv *14–20m* **v** *23–30m, 34–35m/34[...* **vi** *1–10m/3–4*Q **23** *13–17m* **27** *1–6m, 20–24m, 26–33m* **28** *1–10m* **31** *16–21m* **32** *8–17m, 18–23m* **34** *12–13m* **35** *11–21m* **49** *22–26m* **67*** *28–33m* **69*** *30–33m* **75** *30–33m* **75*** *1–4m* **82** *24–31m* **83** *1–5m* **91** *5–8m* **93** *31w* Grey Dorking *32–33m* **108** *5–11m/*Q **151** *11–17m* **162** *24–32m* **163** *1–3m, 4–15m* **171** *19–28m* **172** *5–12m* **176** *28–33m/30w* Dixon **177** *3–17m* **186** *7–10m, 29u "13"/28–32m/w* see Bantams **187** *17–22m* **192** *2–5m* **201** *4–29m* **206** *20–29m* **230** *25–28m* **235** *10–16m* **252** *33u "The | varies"* **253** *1u "from | cream", 7u "hens | unusually"* **254** *26–31m* **260** *4–8m, 13–16m, 17–18m, 18–24m* **261** *15–25m* **262** *24–33m* **277** *32–33m/wb* Pencilled H. **282** *1–4m, 7–11m* **284** *31–33m* **285** *1–2m, 9–15m* **287** *6–11m* **296** *2–6m, 15–17w* Cock & Hen same plumage *19–22m, 29–33m* **297** *15–22m/19z* **299** *8–12m* **302** *wt* Cuckoo Poland mentioned *1–3m* **305** *11–15m, 23–26m* **311** *30–*

33m **312** *1–5m* **313** *5–10m, 20–29m* **317** *11–32m* **320** *3–9m* **333** *1–8m* **342** *7–11m*
⟨*67* means second p. 67 etc.*⟩

FERRIÈRE, Émile *Le Darwinisme* Paris; Germer Baillière; 1872 [Down]

NB O/

FERRIÈRE, Émile *Le Darwinisme* Paris; Germer Baillière; n.d. [Down, another copy]

NB O/

FERRIS, Benjamin G. *Origin of species, a new theory* Ithaca, N.Y.; Ithaca Democrat Print; 1871 [Down]

FICHTE, Immanuel Hermann *Die Seelenfortdauer und die Weltstellung des Menschen* Leipzig; 1867 [Down]

xlvi *9–46m/10w*●

FISKE, John *Darwinism and other essays* London & New York; Macmillan & Co.; 1879 [Down]

FISKE, John *Outlines of cosmic philosophy based on the doctrine of evolution* 2 vols.; London; Macmillan & Co.; 1874 [Down]

vol. 1, 129 *7m, 8m*

FITTON, William Henry *Notes on the progress of geology in England* London; Richard Taylor; 1833 [Down, on B?, I]

FITZGERALD, Robert David *Australian orchids* vol. 1 i–vii, vol. 2 i, iii, iv, v; Sydney; Thomas Richards; 1877– [Botany School, I]
f, fg, gd, sp, tm

vol. 1 i, 1 *26–27x*✏, *27m, 28u*♠, *34u*♠*/34–39m, 35–38m/36–41w* How in other parts of range? *40u "in|seed"/x*✏*/w* seed with every *44–47m/44u "or|time", 49–50m/x*✏ **2** *wt* Is this native rate – Try with own pollen F. Muller & Scott (in Fs letter one is perfectly fertile if own pollen placed on stigma) *1–3m, 34–40m/?, 50–52m* **3** *1–5m/x*✏, *5x*✏, *12x*✏, *16x*✏*/w*✏ rare **4** *1–6w* As the seeds did not germinate, it cannot be told that nat fertilisation occurred *13–15x*✏, *16–17m, 26–30m, 47–49m*♦✏ **Pterostylis longifolia** *8–9m, 14–19m/15u "from|half"/16u "one|five", 22–27m/22u "instantly carried"/24u "two|pollen", 33–35m, 36–39m, 40–42m, 43–44m* **Caladenia dimorpha** *7u "lip|column", 7–9m/"..."/w* Genus like *10u "without|such", 24–26w* are not the calli nutritious
vol. 1 ii, Spiranthes *15–17m/x/16–17u "touch|stage", 20x/u↔, 23–27m/x/26u "under|fertility"* **Adenochilus** *14–16m/x* **Saccolabium** *2x*
vol. 1 iv Thelymitra *13–17m/16u "have|the", 18–25m, 28–42m*

FITZROY, Robert and KING, Philip Parker *Narrative of the surveying voyage of H.M.S. Adventure and Beagle* 3 vols and appdx.; London; H. Coburn; 1839 [CULR, 2 copies of vol. 3, one marked by FD]
gd, geo, gr

vol. 1 NB ♦ 2; 8; 56; 136; 140; 204; 210; 258; 306; 328; 337; 363; 375; 385; copied out
SB ⟨*not CD*⟩

2 *15–17m* **3** *21–27m* **6** *3–6m* **8** *1–4m* **56** *31–34m/w* Feb **57** *22–24m* **58** *1–3m* **59** *5–7m* **87** *14–16m* **133** *29–33m* **136** *6–10m, 29–34m* **140** *9–12m, 19–20m, 22–28m* **204** *20–28m* **210** *18–25m* **258** *22–26m* **306** *3–9m* **307** *22–26m* **328** *9–12m* **329** *9–10m* **337** *1u "some|which", 14–21m/16–21w* 168 ft!! 42ft 126 *28–31w¢¢* **343** *7–8m* **363** *10–13m* **375** *20–28m* **385** *1–6m* **398** *24–30m*
℘

vol. 2 NB1 ♦ 251; 277; 415; 418; 420 copied out
NB2, SB ⟨*not CD*⟩

39 *30–31m* **43** *13–15m* **65** *5–7m/w* no **131** ⟨*markings not by CD until*⟩ **251** *33–34m* **277** *30–33m* **412** *20–25m* **413** *10–13m, 18–20m, 22–28m, 33–36m* **414** *1–13m, 15–23m* **415** *1–7m, 18–20m* **420** *5–15m* **421** *1–7m, 33x/u "twenty toises"* **485** *31m* **486** *17–18m* **488** *22–23m* **490** *23m/m/u "1832"* **496** *27–30m* **498** *11u "James Island", 12u "side|Charles", 8–14m/w* the leeward side compared with **502** *9–11m, 35–37m* **504** *19–22m* **505** *15–18m/16u "north-west", 30–34m, 36–37m*

vol. 3 NB 209 & 210 Law of succession of life in S. America
153 Distribution not always
⟨*many markings not by CD, except*⟩ **153** *1–4m* **154** *17–21m* **184** *wb¢¢* **185** *wt¢¢* **201** *wt¢¢* **209** *4–6m* **210** *6–9m* **215** *31a "The"/31–33c/31–37w/wb* puma, with the condor on its train follows & preys on the guanaco (Habits of.) **216** *1–7c* **272** *16–17m, 25–26m* **273** *9–20m* **307** *wb¢¢* **460** *4–7m (Henslow)* **556** *3–4m* **585** *3–15m*

Appendix NB p.145 p.143 p.146
131 *1–10m* **132** *11–20m*⟨*CD?*⟩ **143** *3–12m* **145** *15–18m* **146** *12–16m*

FLEMING, John *A history of British animals* Edinburgh; Bell & Bradfute; 1828 [CUL, pre-B]
br, tm, v

NB p.264 –Analogous to Pigeons – on vars of Helix nemoralis coupling together.–
⟨*untranscribed w are page-number references*⟩
59 *9w, 37w, 42w* **60** *4w* **94** *1w* **116** *20w, 33w* **117** *1w* **148** *15w* **162** *13w, 35w, 49w* **177** *wt* acanthopterygious *22w, 37w* **178** *1w, 19w, 29w* **202** *2w, 8w, 29w, 36w, 39w* **203** *1w, 11w, 22w, 38w* **224** ✍ *9w* not in this volume *12w* **225** ✍ *4w, 8w, 9w, 10w, 14w, 15w, 17–19m/w, 21w, 25w, 26w, 28w, 29w, 31w, 33w* **226** ✍ *12w, 25w* **264** *13–20m/16u "Reverend | Sheppard"/14–16w* Linn Trans? *27–29w¢¢* **281** ✍ *33w, 34w, 36w* **296** ✍ *3w* Scutibranchia *12w, 13w, 15w, 20w, 27w, wb* Cryptobranchia Heart entire detached from rectum Scutibranchia Heart with two auricle traversed by the rectum. **297** ✍ *12w, 16w* **328** ✍ *5w, 12w, 17w, 23w, 29w, 32w, 36w, 39w* **329** ✍ *1w, 2w, 5w, 8w, 10w* **381** ✍ *11w, 22w, 29w, wb* Siphonida. Cloak more or less closed forming syphons .... 408 **382** ✍ *1w, 9w* **408** ✍ *2w, 10w, 26w* **409** ✍ *1w, 17w, 32w, 43w* **410** *1w, 7w, 14w* **467** ✍ *23w* **472** ✍ *3w, 7w, 9w, 13w* not in this volume **473** ✍ *8w, 10w, 12w, 13w, 18w, 20w* **474** *9w, 17w, 20w* **505** ✍ *2w, 3w, 5w, 7w, 10w* not in this volume **506** ✍ *9w, 24w, 27w, 35w, 43w* **528** ✍ *3w, 5w, 12w, 19w* **538** ✍ *10w, 16w, 23w, 27w, 31w*

FLEMING, John *The philosophy of zoology* 2 vols; Edinburgh; Archibald Constable & Co.; 1822 [CUL, pre-B, S in both vols.]
beh, br, cc, fg, gd, is, mg, oo, phy, sx, t, ti, ud

vol. 1 NB1 See Class Index in next volume.
NB2 almost all first relating to Instinct
20; 50; 52; 221; 224; 229; 231, 2; 236; 241 – good; 246; 254, 6 to 268 to 274; 277; 298; 302; 308; 409; 425; 427xx; 429; 430; 432
20 *10–15m, 27–34m/30u "instinctive | injuries"/ 28–32w* how loosely worded **50** *19–21m* **52** *15–18m (Linnaeus)* **220** *8u "Association | Ideas"* **221** *2–6m/6u "recollection", 9w* dreams **224** *19–23m/?, 23–26w*♦ **225** *2–8m/w* how known? **229** *7–9m, 32–33m* **230** *26–30m* **231** *23–27m* **232** *4–9m/w* like Audubons Water-Dog *10–17w* Old Greyhounds will not run if Hare starts at a distance **233** *25–31m* **235** *23–32m* **236** *5–11m/w* shamming death ♣ My Rio de Janeiro spider shows insects know their **241** ↕*w/wt* The individual who by long intellectual study acquires a habit, & can perform action almost instinctively, does, that in his life time, which successive generations do in acquiring true instinct:– instinct is a habit of generations,– each step in each generation, being intellectual for in lowest animals some intellect? No! *23–25m/27–28m/u "rather | impulse"/* ↕*w* the distinction between these habits perhaps important *wb* It is strange according to my theory that habit which results often of intellectual processes, – Habit may result from any train ie only incidentally effect of reason or ⟨*of intellectual processes*⟩ – is so related to instinct, which analogy of plants leads one to believe to exist, independently of intellect.– **243** *5–9m, 10–16w* How wonderful young of Kangaroo sucking **247** *wt/1–6w* & turning round before sleeping – covering dung &c show that principle may possibly be laid down that every instinct preserved is not changed & some of these may once have been important. *7–10m/x* **254** *4–6m, 7–8m, 31–34m* **255** *12–13m* **256** *19–23m* **257** *1–4w* station & home confounded **258** *29–32m/w* monkeys pulling things to pieces – looking behind looking-glass **259** *28–32m/30u "immediate | individual", 33–34m* **261** *8–14m, 26–30m* **263** *1–2m/w* monkey with dogs **265** *wt* the sudden way insects recover from feigning death shows it is not effect of fainting – do insects such as Byrrhus contract their legs in dying??? *3–7m, 11–12m, 12–13u "Affections | pain", 14–17w* !!! Baby's affect. to Mother!! **268** *1–3m/w* difficult to be accounted for *9–12m, 19–22m* **272** *27–31m/w* difficult **273** *17–20m* **274** *4–7m/w* dogs – wolves porpoises **277** *9–13m/w* By nerves in ♣ some compound animals **298** *2–6m* **302** *9–16m/w* !!!dogs running Hare p304 **304** *18–21m, 29–35m* **305** *10–17m, 23–30m* **308** *24–26m/21–28w* What are active powers? **309** *1–6m* **409** *19u/a "neuter"/17–19m/w* of both sexes my theory like plants **425** *1–4m/w* Has true Eggs *15–17m/15u "to | confined", 19–29m/w* I think infusoria properly breed **426** *1–2m* **427** *5–18m/13u "Soc. | 268", 23–30m/w* argument not conclusive also x by flowers not being permitted. *wb* Hypothesis – such plants were originally long lived and have become annual, having been transported (by nature) to cold climate. **428** *11–14m/w*♦ in course of time, every *25–28m/w* this is merely same as successive buds on trees *31–34m/33u "acotyledonous", 36–38m, wb* Hence one can only say – strongly tempted to believe, only true reproduction is seminal– **429** *wt/1–6w* makes vast distinction between plants & animals *7–9m/8–9u "preventive |*

aversion"/w ?assumed V. p. 430 note.– *27–29m, 29–34m/?* **430** *7–8m, 29–30m, 30–32m/32u "which | exhibited"* **432** *9u "procreating", 10u "of species"/10–12w* only applies to plants

vol. 2 NB1 The sexes of Nightingales arriving at different times, is illustrated by sexes separating as in chaffinches, where there is no migration.–
NB2 good Chapt on migration of Birds
5; 6; 8; 10; 12; 30; 33; 35; 40, 3, 4.; 108; 140; 149; 355; 356; 362; 379; 407; 530; 535; 578; 618
SB ❐ℜ
231 C. cornix breaking shells
& 233 All here excellent illustrations of reason in animals.–
241 some good remarks on instinct
vol. 2
10 Horse in Zetland pregnant only biennually
Q
42 Flight of Birds Rate of – Hawk-case.–
44 On birds knowing time & direction
149 on masculine instincts in old Females
356 Fecundity of Fish

5 *24–30m* **6** *9–10m/10u "excite | vomiting"* **8** *12u "produced | stature"/w* sometimes *14–16m, 19u* **10** *20–21Q 24u "his | year"/25u "twelfth"/26u "above | years"/24–29m/w* How other horse – goodish – How in cattle **12** *9–33m* **13** *16–20m* **30** *8–16m* **32** *34u "leafing | elm"/28–34m (Linnaeus, Stillingfleet)* **33** *1–5m/2u "leafing | sycamore", 19–24m, 31–33m* **34** *wt/1–5w* These facts show how much influence small differences of temp – have upon – distribution of Birds *5–9m* **35** *2–22m, 21–24m, 30–32m/w* Zoology of those Islds **36** *1–7m, 9–13m* **41** *1–8m, 25–34m* **42** *wt* In Montagus Dict it is said from Dr Show that a Falcon of Duke of Cleve flew out of Westphalia into Prussia in one day – but this too vague. *4–37w* In Montagu Col. Thornton estimated that a Falcon after a Snipe went at rate of 9 miles in 11 minutes = 49 miles per hour but independently of numerous turnings **43** *3–7m/w* all correctly quoted *8–13m, wb* "certainly 100 miles is not beyond a fair computation for migratory continuance". Montagu. **44** *7–26m/15–19w* =very good= *20–23w* Pacific also *wb* proves a faculty – useless in indulge in mere conjecture as has been done, showing ♣ that electrical currents **108** *9–11m, 30m, 31u "fallow-deer", 32m* **109** *25–27m* **140** *5–30m* **149** *3–16m, 19–21m*
℘
355 *1–4m* **356** *1–4m, 20–35m* **357** *21–24m, 27–29m* **362** *1–5m* **366** *28–32m* **379** *10–12m/w* Secondary male characters *21–22m* **407** *21–24m* **530** *6–8m, 35–38m* **535** *6–10m, 33m*
℘
578 *14–23w* is presence of neuters universal in these genera
℘
619 *4–8m/w* possibly serve for reference *10–16w* See about Royston Crow

FLOURENS, Marie Jean-Pierre *Examen du livre de M. Darwin sur l'origine des espèces* Paris; Garnier Frères; 1864 [CUL]

NB 48 64 nothing
48 *1–5m* **64** *8–9m* **65** *1–9m*
Catalogue ℘

FLOURENS, Marie Jean-Pierre *De la longévité humaine et de la quantité de vie sur le globe* Paris; Garnier; 1855 [CUL]
br, ch, cs, f, geo, he, hy, pat, t, ta, tm

NB p.50; p.84; p.105–9
p120; p130; p146; p.148; p156; p.173; p185
SB ❐β
109♦ 143 Hybrid Dogs & Wolves sterile from 4th generation – p.156 – Q
p144 On Prevalence Q of types in crossing Ass✍ &✍ Horse✍ Dog & Jackall &c &c
145 reduced in 4 generations to pure form Q
148 It is succession, not resemblance which makes "a species". (Ch. 4)
185 vis medicatrix

title page *u ⟨author, title⟩* **50** *⇑15–1m* **84** *↕w/wt* How utterly the law fails in insects, How in Birds? Pigeons mature very quick; yet they live pretty long **104** *⇑4–1m/!!* **105** *5–8m* **106** *⇑11u "le thur"/⇑11–8m* **108** *⇑6–1m* **109** *6–12m, ⇑8–4m, ⇑2–1m* **120** *4–15m* **130** *⇑7–1m/wb* Has a Man seen an escarpment worn by the sea? **134** *wt* argues against an inherent tendency to change. **135** *6!/u "aucune | espèce", 9–10m* **140** *⇑15–1m/wb* Yet Cuvier believed in Dogs. **141** *⇑15–1m/w* (a) *wb* (a) shows only the difficulty of deciding **143** *⇑1u "dès la"/w* at *wb* context shows this meaning **144** *wt* This shows, means in & in. The interbreeding may have aided, only aided, the natural sterility of the Hybrids. *1–2m/w* (a) *4u "bientôt", 6u "Mes expériences"/6–8m, 12–13m, ⇑10–9m, ⇑8–6u±, ⇑6–1m* **145** *3–6m, 7–16m, 18–19m/w* crossed with pierpoints Q✍ **146** *2u "bientôt", 4u "bientôt"* **148** *⇑6–4m* **149** *12–13m/?* **154** *⇑12–10m* **156** *4–8m, 9–12m/w* 161 male 133 fem *⇑7–5m* **157** *wt¢¢* **173** *1–4m* **185** *10–15m/w* always forming the bones & therefore capable of forming a lost part V. ante

FLOURENS, Marie Jean-Pierre *De l'instinct et de l'intelligence des animaux* 2nd edn; Paris; Paulin; 1845 [CUL]

beh, br, cs, ex, f, h, hy, mg, sp, t, ta

NB p.26; p.32; 50; 57; 85; 88; 97; 101; 106; 110; 130; 141; 175 ⟨*he probably means 173*⟩; 191; 200

SB ❑β
27 Condillac on instinct Q
32 Instinct a Primitive Force, Q like intelligence
50 man alone reflects
57 Q✍ F. Cuvier has compared instinct to Habit – Well discussed
85 On Breeding of Monkeys & Hybrids in confinement, 88 do
97 On Breeding of Chacals & Hybrids of
101 Camel & Dromedary produce sterile mules
106 Breeds of sheep all fertile & with Mouflon
108 Zebra – crossed with Cattle Hybrid fertile
111 Q Beavers always amassing material in Cage
121 Thinks Fox & Dog will never couple p 131
131 Dog & Wolf sterile from 2d generation (Think of savages)
191 Cat exercise Kitten with Mice NQ
200 He saw bear wash poison off cakes NQ

26 *12–15w* He thought it actual habit **27** *7–9m/w* in that generation **32** *15–18m* **47** *wt* bird modifying nest not migrating *18–19m* **50** *17–20m/1–21w* except by consciousness of oneself, how can this be told? if not there are no proofs that animals do not reflect **57** *8–11m* **58** *3–6m, 13–20m* **60** *11c "habitude"/11w* intelligence *19–21m* **85** ⟨*at top of page a portion of The Times is stuck, concerning Duke of Northumberland giving Cercopithecus griseo, Grivet, and C. viridis to Royal Surrey Zoological Gardens; dated 10 August 1847*⟩, *10–12m/w* p.88 *14–17m* **88** *4–9m/6u "maki | blanc"* **97** *11–14m/15u↔, 18–19m* **101** *3–4m* **106** *4–6m, 19–21m* **107** *16–19m* **108** *6–7m, 12–14m* **110** *9–13m/*Q **111** *9–11m* **114** *2–5!/m, 11–14m* **116** *2–6m, 9–15m* **121** *9–15m* **130** *wt/1–10m/w* no doubt Pallas theory presupposes the extinction of many aboriginal species *14–23w* only tenable by getting a little blood of some other species in.– **131** *7–10m, 20–24m* **132** *14–17m/1–18w* the Pig good to state Pallas hypothesis from. **133** *19–21m* **141** *11–13m* **173** *18–20m* **191** *11–12m* **200** *1–2m/1u↔*

FLOWER, William Henry *Catalogue of the specimens illustrating the osteology and dentition of vertebrated animals contained in the Museum of the Royal College of Surgeons of England* part 1; London; David Bogne; 1879 [Down]

FLOWER, William Henry *An introduction to the osteology of Mammalia* London; Macmillan; 1870 [CUL, S]
af, ds, phy, rd, sx, tm, v

NB 64 Caudal Vertebrae ♣
p.265–268 – good for ♣ plates of Homologies of Limb-Bones
270; 279 Analogy; 291 Rudiments; 294 Descent
Descent 325 spur of male Echidna
296 Ligamentum teres
303 Rudiment
321 foot of Marsupials origin
SB ✍ Flower Osteology of Mammals
p.265–268 excellent figures of Homology of Bones of Limbs
♦ p.270 va
p279 – good case of analogical resemblance in bone of foot
p.291. Rudiment of Limb in Cetacea, used for attachment of Bone of Penis
p.296 List of animals which do not possess Ligamentum teres to thigh-bone – Orang is one. Have I not read case in Man doubtful? Mivart says cavity in Orang & Chimps variable
303 Rudiments of Limbs present in an ancient Sirenia, but absent in all existing species

64 *13–15m/14u, 18–21m* **270** *24–30m* **279** *1–8m* **291** *25–33m* **292** *5–10m* **294** *12–17m, 22–24m* **296** *1–7m* **303** *1–6m, 15–17m, 18–21m* **321** *28–33m* **322** *1–6m, 7–12m* **323** *1–33m* **325** *3–5m*

FLÜGEL, Johann Gottfried *English–German & German–English Dictionary* part 1; Leipzig; G. Liebeskind; 1838 [Down] ℘

FOCKE, Wilhelm Olbers *Die Pflanzen-Mischlinge* Berlin; Gebrüder Borntraeger; 1881 [CUL, S, I]

℘
464 *5m* **483** *10m*

FOL, Hermann *Recherches sur la fécondation et le commencement de l'hénogenie* Genève; Henri Georg; 1879 [Down, I]

FOLLEN, Eliza Lee *The life of Charles Follen* Boston; T.H. Webb & Co.; 1844 [Down]

FORBES, Edward *On the Asteriadae found fossil in British strata* (offprint) [CUL, I]
af, ds, em, fo, sp, t, ti, tm

SB1
p.458 &c
✍ p526 This paper must be read after looking over Von Buch
to end – I am not at all convinced by it –
SB2 ❑β
458 Crinoidae & Echinidae essentially "chronomorphic"
– Knowledge of Fossils confined to N America & Europe, evidently one region.–
460 Silurian star-fish a recent genus
526 Table of affinities of Echinoderms, showing that does not go with age p531

457 *1u "Asteriadae", 2u "Forbes", 12–16m* **458** *1–6m, 10u "chronomorphic", 14–20m, 42–43m* **459** *21–25m, 35–38m, 43c "corresponding"/w*✍ Silurian **460** *11–13m* **461** *3–12m* **463** *33c*✍ *"Lower"* **464** *5c "Lower", 21c "Lower"* **526** *wt/ table.w*✍ How absolutely without Law is the development of groups ie nothing like ♣ embryonic metamorphosis *1u "Echinidae"/ wt*✍ doubtfully palaeozoic p458 *1u "Asteriadae"/wt*✍ existing genus Bala. ∴ oldest p.459 *3m/w* carboniferous ?Older? *table.w*✍ Silurian *table.w* I do not see why Cystideae may not have been the parent form & given out 3 lines; as well as be inserted between Crinidae & Echinidae. *table.m "Crinoideae"/w* Lowest order ♣ order *wb* I do not see why Cystideae placed above Crinoideae; the only sd. argument ought to be derived from simple organization.– **527** *25–27m*✍ **531** *16–23m*✍, *33u "first"/w* I fancy not in time **532** *11–12!, 13u "negative | polar", 24–36w* absolutely unintelligible **533** *8–9!/9u "exactly | value", 15–17!, 38m, 39–40!*

FORBES, Edward *A monograph of the British naked-eyed Medusae* London; The Ray Society; 1848 [Down]
sy

NB ♦ 40 Remark on nomenclature

FOREL, A. *Les fourmis de la Suisse* Zurich; Zurcher & Furner; 1874 [CUL, I]
beh, cs, em, fg, he, ig, no, or, pat, phy, r, sp, sx, tm, ud, v

SF ❑β ➾
Kreisirrenanstalt Munich
NB Page III
13–19 121–134 144–147 116–121 258–269 272–274 ☞276–283 285–293 299–300 308–310 341–351 314–315 371–374 386–388 391–396 440–449 443
SB1 ❑β ➾
All marks from beginning to end
SB2 ➾
p.14 on differences of worker Ants
p.123 Brains of male female & neuter very curious
135 Ants clean each other, 152 take old nests & modify them to their own use
p.203 <u>Make</u> or work on roads.– 206 invent new methods & vary their work.
208 adjoining colonies friends 248 in cutting off heads of other ants – knows position of ganglion
249 courage varies according to number of community. 250 ♣ attend to slightly injured ants – leave badly wounded.– 251. Friendly ants rather perish than attack each other for food. 258 263 allied ants of distant species– 274. In fighting tactics of different species different. 280 association of 2 species
286 On ants recognising each other for a time & at last forgetting – Huber error
296 A few ants determine course of others – 301 signal communicated
304. Ants get <u>mad</u> with rage when fighting & are calmed by the others
307. Stupidity of Rufescens in not taking cocoons on ground, because will try to find entrance to supposed nest. p.321 number of slaves 20,000–25,000 under 1 year by P. rufescens They examine previously the nests to be attacked.
343 In one genus concludes that all crossing except between Brothers & sisters male cannot leave Nests (dimorphic!) (but I think courting ●)
⟨over⟩
p341 a slave-maker.– 347 gradation towards perfect slave-maker.
p.359 F. sanguina number of slaves very variable p.363 Errors of F. Smith
363 Different tactics of 2 species in fighting
365 364 var of rufa F. rufa normally makes slaves 366 ♣ number in nest –
367 sick one attended to by comrades 367 play
373 Mixed colonies, not explained.
394. Nymphs of Ants cannot open cocoon for themselves, without aid from others, <u>often</u> aid them in removing the skin
397 same female fecundated by several males – 398 fecundated female does not enter old nest
399 females fecundated are often caught & brought back by force to natal nest, & these must have been fecundated by males of same nest.

FOREL

417 not known how new colonies established.
419 very curious evidence how rarely ants of distinct nests intercross.
421,422 Ants protect their Aphides from all enemies – so mutual service.
440 excellent summary of Whole; approves of what I have said of origin of slave-making
441. thinks atrophy of ovaria in Neuter may be due to development of their brains.– 441 trace of castes in neuters very general – about intercrossing 446 Indecision of Mind & Struggles between opposed instincts.

14 *9–16m, 18–24m* **15** *1–4m, 6–8m 7u "règle | distincts", 11–12m, ⇑6–4m* **18** *16–20m* **19** *1–5m* **123** *⇑18–16m, ⇑13–10m* **135** *⇑14–12m* **152** *11–16m* **203** *6–8m/8u "travaillent | les"* **206** *10–12m* **208** *5–11m, 12–17m* **209** *⇑6–1m* **248** *15–19m* **249** *⇑12–9m* **250** *1–4m 1u "exceptionellement", ⇑3–1m* **251** *10–12m* **258** *⇑18–15m, ⇑9–5m* **262** *1–3m, 10–14m 10u "fraîchement écloses"/11u "travaux | des", 18–20m/19u "trois | jours"* **263** *3–7m* **274** *⇑14–12m/⇑14u "tactique | est"/w* of different species **280** *⇑8–2m/w* association of 2 distinct species **286** *15–20m 15–16u "Voilà | origine"* **287** *1–4m 1u "compagnes | mois", 18–22m, 23–24m* **296** *⇑18–14m/⇑18u "la | donnée", ⇑3–1m/⇑3–2u "elles | arrière"* **301** *⇑12–7m/⇑10u "un | toutes"/⇑9u "dans | direction"/w* clearly signal **302** *⇑15–12m* **304** *⇑10–3m* **307** *8–15m, 16–18m, 20–24m, ⇑7,/u "esclaves | reconnurent"* **308** *⇑11–8m/⇑10u "Revue | scientifiques"* **321** *11–16m, ⇑7–4m* **325** *5–6m/w* ponte larva *16–18m 17–18u "tandis"* **343** *⇑4–1m* **344** *1–5m, ⇑7–5m/⇑7u "P. rufescens"* **347** *⇑3–1m* **359** *⇑8–4m* **360** *4–9m* **362** *6–8m* **363** *2m, 4–8m 6u "faisaient | du", ⇑5–1m* **364** *14–15m, 17–20m18u "savoir | plus"* **365** *⇑18–16m* **366** *⇑9–3m/⇑8u "5000 | 500,000"* **367** *17–19m, ⇑6–1m* **369** *⇑14–11m/⇑14–13u↔, ⇑8m* **373** *⇑10–1m* **394** *7–11m, 13–20m* **395** *⇑13–9m/⇑12–11u "se | seules"* **397** *20–22m* **398** *4–5m 5u "de | diverses"* **399** *⇑15–11m, ⇑10–9m, ⇑7–5m* **400** *⇑2–1m* **402** *⇑14–10m* **417** *12–15m* **418** *⇑14–12m* **419** *11–28m/m* **421** *5–8m, 9–11m, ⇑12–9m* **422** *7–9m* **436** *⇑2–1m* **440** *⇑14–6m* **441** *1–7m 5u "le | du" 6u "atrophie | secondaire", 10–12m, 18–20m, 21–23m* **442** *⇕m, 15w* Sexual differences *⇑17u↔/⇑15u "travail | tout"/⇑9–6m/w* not transmitted, but given to neuters & thus indirectly acquired by by males & females. very curious. *⇑5–4m, ⇑3u "au | autre"* **443** *8–9m/w* I ought to read again about Strong. testaceus *10–13m, 19–22m/21u "dans | manière"/22u "d'une | d'autres", 24–26m/w* & most dominant on earth *⇑3–1m* **444** *2–10m 3u "tandis | besoin", 9–12m* **445** *12u "les | sont", ⇑20–18m,*

⇑13–11m, ⇑7–4m, ⇑3–1m **446** *3–15m, ⇑10–7m, ⇑7–4m* **447** *1–3m*

FORSTER, Johann Reinhold *Observations made during a voyage round the world* London; G. Robinson; 1778 [CUL, pre-B, S]
beh, co, gd, geo, gr, is, se, sp, ve, wd

NF Classes Islands p14
✍ p.27 Tanna volcanic and has I certainly think elevated coral on coast
NB ◆ 21; 22; 179; 183, 5; 187, 9; 193 (Abstract)
187 Besides two domestic Mammals only Bat in Western isld; & Black Rat in Society, Friendly & New Hebrides p188 in Tanna 2 species of Bats.
p188 Hogs of same breed in the several isld
193 Natives of Society & Friendly Isld catch & tame Pigeons & Parrots –

14 *2–23m, 7u ⟨place-names⟩/5–8w* Maatea a little to SE of Tahiti V. p 93 *8u ⟨place-names⟩/w* close together **17** *4–5m* **20** *1–2m* **23** *18–23m/20u "formed of corals"* **24** *1–5m*✍ **26** *20–23m* **27** *16m* **69** *8–10m* **70** *18–22m* **147** *7–16m/7u "one | only"/w* V. 173! *10–14w* NB In Cooks voyage nothing is said about Forster landing here *17u "Turtle Island"/15–20w* ?ought this not to be written Savage Isld In journal (his own) says passed by it, no anchorage **155** *18–23m* **173** *8–16m/10–11u "raised | water"/13u "grew | without"* **179** *17–19m/→* **180** *1–5m* **183** *18–21m/w* stuck to rocks **185** *22–24m* **187** *4–6m, 18–19m* **188** *7–9m, 16m/14–16w* implies same var. *17–20m* **189** *8–16m/9–10w* implies same var. **193** *9u "at | size", 12–15m* **229** *15–18m* **235** *5–9m* **237** *14–17m* **238** *1–7m, 26–27m* **251** *23–24m* **326** *1–3m* **327** *18–19m* **364** *11–13m* **384** *⇑7–5m* **403** *4–5m* **432** *22–23m* **450** *13–15m* **459** *6–8m* **554** *⇑9–8m, ⇑2–1m* **560** *1–4m* **561** *12–16m* **562** *20–26m* **567** *18–19m* **569** *9–11m* **588** *15–21m* **589** *1–4m*

FORSTER, Thomas *A synoptical catalogue of British birds* London; Nichols, Son & Bentley; 1817 [CUL, pre-B, S Charles Darwin 1826]
sp, y

facing 2 *w*✍ The Ringtail in Turton's British Fauna is made a distinct species, under the name of Falco Pygorgos – as does Lewin & Wolcot **facing 11** *w*✍ 77.78 These are considered by Turton, on the authority of Dr Latham, as only the young & very old ones of E. Nivalis

FOSTER, Michael, and BALFOUR, Francis M. *The elements of embryology* part 1; London; Macmillan & Co.; 1874 [Down]

FOSTER, Michael, and LANGLEY, J.N. *A course of elementary practical physiology* London; Macmillan & Co.; 1876 [Down, I]

FOURNIER, Eugène *De la fécondation dans les Phanérogames* Paris; F. Savy; 1863 [CUL]
dic, fg, gd, mhp, oo, sx

NB 56 Read; Fert of Lilium
p.52.– Lopezia curious contrivance for fertilisation
♦ 61 Drosera
68♦
73 Flowers under water make ball of air –
♦ 117 to 130
61 Parietaria like Nettle (wind)
117 on fertilisation of grasses
118 Dichogamy
120 Moicous like Dioicous in fertilisation
Cucurbita Pepo monoicus & dichogamous

52 *15–20m* **56** *2–10m* **57** *25–30m* **61** *2–13m/5u "acide cyanhydrique"/5–6u "les | acides", 23u "Pariétaires"* **62** *12–21m* **66** *6–11m* **68** *13–25m (Hofmeister)* **70** *3–9m/1–5w* no doubt wd visit occasionally **73** *10–14m* **117** *18–25m* **118** *14–16m, 26–31m* **119** *22–26m* **120** *9–12m*

FRANCISQUE-MICHEL *Du passé et de l'avenir des Haras* Paris; Michel Lévy Frères; London & Edinburgh; Williams & Norgate; 1860 [CUL, S]
beh, v, y

SA *⟨pp. 81–82; a fragment⟩*
NB 7 Horse imported into France 705–7
47 different colour valued by end of 15th cent
X✍ 50 Arab do
♦✍ 84 only end of 8th century – Charlemagne gives precise valuation about Stallions; 90 Prince of Wales bring a Stallion in 1305
SB ♦ p7; p.47; 50; 84; 90; all classed

title page *u ⟨title, author⟩* **7** *2–4m/3u "arabis", 15–19m* **47** *6–8m, 11–13m/12u "liart pommé"* **50** *wt/5w*♦*/7w ⟨not CD⟩, 5–10m/w* arab superstition about calves Hoof **51** *19–21m*✍ **84** *1–2m, 6–7m/6u "des | reproducteurs", 11–12m* **90** *9–10u "Edward | Canterbury", 11–23m/13u "et | étalons", 15u "beau | servir", 16u "prêter"/20u "bien | ramèneront"*

FRANK, Albert Bernhard *Beiträge zur Pflanzenphysiologie* Leipzig; Wilhelm Engelmann; 1868 [CUL, S]
mhp, t

5 *26m* **8** *26–28m* **9** *30–31m* **10** *20–26m/w* **1** *28–31m/w* **2** **11** *14–20m* **15** *27–28m* **16** *30–31m* **17** *26–28m* **19** *11–21m/14–15u "muss | auswärts", 25–27m* **25** *23–33m* **26** *26m* **32** *11–12m* **38** *22–25m* **39** *25–26m* **42** *15–18m* **43** *8–14m, 22–23m*✍*, 24–25m* **46** *13m* **47** *22–24m* **54** *33–34m* **55** *30–32m*✍ **56** *11–17m* **57** *3–5m* **59** *7w* 15/9 *17–27m, 28–30m*✍ **61** *15–17m, 21–22m/21u "Die | völlig", 25–26m* **70** *table-columns.w* V' X' V X **72** *17–23m/17–19m/18–19m* **76** *6–8m* **77** *wt* Good Boy **78** *23–25m/24u "inneren Schichten"* **80** *4–19w* inverted radicles, quite perpendicularly yet moved downwards **81** *1–4m/wt* Explains by growth not being equal all round **83** *32m* **85** *18–27m/21u "Heliotropismus"/24u "Geotropismus"* **86** *4–5u "hängenden | trauernder"/w* geotropic *13u "Sie | während"/12–14m/w* capable during whole growth **88** *7m* **90** *17–20m* **91** *2–6m, 17m, 19–26m/20u "Decandolle", 23w* BR **97** *1m, 3–5?, 24–27m, 26u "concentrirte Zuckerlösung", 27u "Krümmung unverändert"* **98** *wt*♦*, 1–3m, 12–14m*♦

FRANK, Albert Bernhard *Die natürliche wagerechte Richtung von Pflanzentheilen* Leipzig; Hermann Weissbach; 1870 [CUL]
ad, beh, cc, mhp, phy, t, v

SB1 ❐ℜ
<u>From final chapter</u>
p.90 Organs will grow in all directions some favourable & some hurtful – will change into favourable position – I suppose individ. movements.–
Movements become so firmly associated with certain external influences such as light & gravity that the latter suffice to cause the same process of growth or movement.
good/ like instinct – compare with chicken seeing food & eating it an associated habit in this case
<u>over</u>
⟨over⟩
We must say that we ♣ take nearly the same general view as Frank does about the manner & means by which all the parts of plants adapt themselves to the position in which they stand & to external agencies; but with this considerable important difference that we now know that each growing part is continually in circulation, ie bending to all sides, & if it be advantage to a part & to the plant, for it to bend in any direction with respect to the remainder of the plant, or to any external agency, if this agency produces any effect which can be perceived by the plant, then the circulating movement can be modified to or for such agency, or the <u>time</u> of such movement can be modified in

atten.○ to such agency as in the shape of ♣ Leaves.– no darkness may be cause, but not of direction.
SB2 ❑β ✍
A.B. Frank Die Naturliche Wagerichtes Richtung von Pflanzentheilen 1870.
p.2 speaks of sense for attraction
17 says position of all horizontal stems due to gravitation & light; but at
18 Light always preponderant over gravity
20 Fragaria stolons see to this movements very slow.
45 leaves stand at right angle to light – inclined when light strike one side
46 leaves rise up in darkness – ie are apogeotropic & light causes them to be horizontal.
In short an organ will put itself in any position with reference to light which may be advantageous; but then the rising in the evening is odd.
52 twisting confined to petioles.– & not to joints○ how different from Pfeffer.
62, 64 leaves of tree which do not rise in darkness.
75 Hofmeister nearly discovered transverse○ – geotropism & Heliotropism

2 *wt* a sense for attraction of gravity *2u "ein | für"* **17** *12–18w*✍ at least often get into horizontal position by epinasty *18–23m, wb* Nothing ♣ else **18** *10u↔/10–12m* **20** *22m, 33–34w* Fragaria *35–39m, 40u "erfolgende | gediehen", wb* takes place very slowly **21** *9–13m, 13–16m* **22** *10–12m, 24u "vertical aufrecht"* **23** *7u "Achsen", 14–19m, 24m* **24** *8–9m, 26–27m* **25** *33–38m* **26** *14u "aber | die", 15u "der | gleich", 24–27m* **27** *25u "horizontaler Richtung"* **28** *31–35m, 36m, 38–39m, wb* He overlooks epinasty **29** *17–20m* **30** *27u*✍ *"eine Incurvation", 29–32m* **31** ✍ *7–8m, 12m, 14–16m, 36–38m* **32** ✍ *1–4m, 34–37m* **33** ✍ *1–2m* **34** ✍ *17–22m* **35** *8m* **36** ✍ *12–16m* **45** *18–21m, 21–22u "Beziehung | steht", 24–27m/w* inclined when one side shaded *29–36m/31–33w* evidence of **46** *11–16m/w* leaves rise up in darkness *15–24w* & is an apogeotropic but says that light causes them into horizontal **52** *9–15m/10–11u "eigentliche | übernimmt"/1–12w* ♣ twisting confined to petiole; ♣, *19–21m/19u "der Stiel"/17–25w* How different from Pfeffer **53** *1–10m/w* Use of compound Leaves *14–17m/w* especially when fixed by tendril *19–21m, 33u "Clematis"/→/22–25w* Mutisia Bignonia Fumaria ○ **55** *11m* **59** *23–28z/zb, 34–39w* This might be tested by Klinostat **60** *3m, 28–38w/wb* This is the same thing as epinasty Origly caused by light afterwards guided by geotr. **62** *26–30m/23–34w* I thought he said rise in darkness *32–33m/32u "Letztere | und"/33u "ihre | horizontal"* **63** *32–35m/33u "wenig | aufrechter"* **64** *1w* in darkness *3–7m, 8–13m/8–9u "durch | können"/12u "ausgeprägte | Lichte", 13–17m/14u "Schwerkraft | Licht", 35–39m* **73** *5–8m/6u "Achsen"/7u "anderer | durch", 10–15m, 23–27m* **74** *21–27m* **75** *1–3m/1–2u↔/2u "Hofmeister"* **76** *15–19m, 25–32w* goes on growing *34–37m/w* fulvinus I believe error Pfeffer **77** *11u "der | in"/14–17m/11–17w* seems to consider it a direct result and not mere excitement *26–30m/27–28u "Transversal | Heliotropismus"* **78** *34m, 35u↔* **81** *wt* I seem always to consider the movement direct effect of light *5m, 9–32w* this assumption appears to be merely lazy so it is **85** *28m* **89** ↕*w* He believes that the individuals which originally chanced to have, for instance, plumule erect & radicle vertically downwards, would survive; but this as yet does not apply to movements, & still less to cases like sleep-movements.– **90** *2m, 3m*

FREKE, Henry *On the origin of species by means of organic affinity* London; Longman & Co.; 1861 [Down, I]

FRÉMONT, J.C. *Report of the exploring expedition to the Rocky Mountains in the year 1842, and to Oregon and North California in the years 1843–'44* Washington; Gales & Seaton; 1845 [CUL] ℘
beh, br, gd, is, sl, y

NB1 It might well happen, as in Horses of Falkland, that the old animals might live at ease & not be driven to search new countries, open to them (as is evidently the case with the Buffalo) and the pressures are chiefly falling on the young.– It is important to observe that no selection cd aid Horse in Falkland.– or Horses in Paraguay except strength of constitution & breeding at diff time of year; but that cd be effected only if a little earlier or later was more favourable
NB2 Windhorn Mountain Lat 43°N; 84; 124; 174; 144
166♦
Abstract Feb 57
p144 The Buffalo only crossed R. Mountains lately owing to persecution

84 *44–51m* **124** *45–49m* **144** *43–46u±, 49–53m* **166** *wt*♦/↕*w*♦ Previously there was good evidence of the Buffalo having been driven into new districts by Hunters one race of Indians much obliged for this

FREY, Heinrich *The histology and histochemistry of man* trans. A.E.J. Barker; London; J. & A. Churchill; 1874 [Down] ℘

FROHSCHAMMER, Jakob *Das Christenthum und die moderne Naturwissenschaft* Wien; Tendler & Co.; 1868 [Down] ℘

GALLESIO, Georges *Traité du citrus* Paris; Louis Fantin; 1811 [CUL, pre-B but read later: S C Darwin Feb 1842]
cc, cs, f, fg, gd, hy, ig, mn, oo, or, pat, spo, t, tm, v

NB1 p146 Orange; 143
32; 40; 46; 62 to 85 to 167
line across page ⟨hereafter page-numbers by CD but some words possibly not⟩
193 to 222 Hist of Citron, marked but unimportant
to 286 – ditto ditto
p.292 &c &c Sweet Orange different from bitter & later introduced
p.297 ♣ Origin of Sweet orange
p.321
p.327 to end
p.359 the only passage on acclimatisation of orange
NB2 Nothing important in all these extracts below the cross line → ⟨*to NB1 line across page*⟩
Nov. 47 I think that experiments cd be worth looking over again.–
Look at the Synoptical Tables first.–
SB ❐ℜ
34. Sweet & bitter oranges & almonds & Peach & nectarine always true
40 orange fruit affected by pollen of Lemon!
46 crosses with pinks analogous, striped & some pure white & red.
67 The Lemons which depart most from type, (or are monstrous are sterile) p331
147 Mixed orange, lemon & citron
☞ 359 curious case showing how slowly & rarely real attempts have been made at naturalisation ⟨*u*✏⟩
a poor Book

30 *23–25m* **31** *11–13m* **32** *18–20w* It is not different in W Indies *20–22m, 22–24m* **34** *1–2m* **40** *18–23m* **45** *24–26m* **46** *1–5m/w* Like chrysanthemums latter prbly a cross of 2 vars. *12–16m* **47** ✍ *12–15m* **62** *9–15m/10u "grande | mélanges"/w* polyadelphia ♣, *13u "nombre infini de races"* **63** *9–11m/9–10u "plusieurs | évènements"* **66–67** *wt* xox according to this view, a plant as soon as it became accustomed to new conditions, would produce more seeds, & therefore in most cases would produce ♣ less fruit & hence would be said to degenerate!! **66** *7–14m, 16–17u "ils | variétés"/15–22w*♦ shows how little weight he puts to character of sterility *25–29w* for he certainly admits ♣ varieties distinct from hybrids *18–19m/w* both hybrids **66–67** *wb*✍, *part* ✏ * This is quite new view of varieties being born sterile, it is certainly case with many pears, apples &c &c not due to mere effects of conditions on the actual ♣ plant, but ♣ is born with xx tendency to be sterile (& hence good fruit or fine double flowers are produced) – think Kolreuter found certain individual hybrid-crosses ♣ more sterile than others, thus if pear seeds are sown, some seedlings are more sterile than others **67** *3–4u "celles | stérilité"/1–5m, 13u "leurs | toujours", 20–21u*↔, *22–28m,* ↕*w*✍ in animals out of conditions no case of offspring being born sterile (? do not perhaps get full fecundity for some generations?) but in plants it is very frequent case ||= very important:= view – ✏ xxx XOX **68** *17–18u "pour | distinction"/w* ñato oxen!! **71** *10u*↔ **73** *7–10m* **83** *2–5m/2u "ces noms"/ 3u "innombrables"* **85** *4–8m* **90** *27u "plusieurs siecles", 28u "conservée"* **91** *1u "variétés", 3–5m, 3u "Dès | colline", 5u "multiplier | semence", 6–7m* **92** *26–28m* **95** *7–8m, 11–18m* **96** *2–3m/3u "souvent"* **97** *16–20m/19u/wτ* **100** *15–17m* **102** *20–22m/u±/wb* This is not like Kolreuters certain hybrids **103** *3–8m* **109** *12–14m* **116** *20u "vulgo Pomum"* **117** *19–20m/20u "jamais pu"* **118** *3–5u±, 9–12m* **119** *12–14u±/10–16w* Every one of his hybrids as yet conjectural *wb* Has the Bergamot seeds?? **121** *9–11m/10u "Il | semence"* **125** *27–28m* **126** *1–3m* **129** *4u "n'offre | jaunes"* **130** *14–16m* **133** *24–25m/u "ils | dépine"* **135** *4–5?, 22–23m/u*↔ **137** *8u "feuille | crépue", 9–10u "la | limonier", 12u "orangier", 21–23m/23u "hybrides | se", 26u "variées | proportions"* **140** *18u*↔, *23–24m/24u "en | 1270"* **143** *22–28m/22u "Ses | especes"/23u "blanchâtres"* **146** *6u "1644", 24–27m* **147** *6–10m/1–10w/wt* X are the several cases of citrus above given with flowers & fruit of different ♣ forms cases of hybrids sporting.– *11–20m, 22u "aussi | point"/24–28m/25u "une | de"/wb/8–28w* These are extreme cases of sporting & hybrids – no more probably like Laburnum – like mottled Hollies sporting back to pure leaves **148** *1–2u "arbre | formes", 4–7m/7u "oranges | sans", 14–16m/15u "orangers | cédrats", 18–21m, 22–25m* **154** *6–7u "qui | d'épines", 7–10m, 11u*↔ **155** *4–6u "et | ordinaires", 8u "quelquefois | semis"* **156** *19–21m/20u "couleur | de"* **157** *3–5u "ne | chétives", 6u "c'est | fécondation"/7u "il | pépins", 8u "se | semence"/5–8w* not a hybrid because no ways intermediate *9–24m/23–25m* **158** *27m/u "exclusive | Chine"* **159** *25–28m* **165** *13u "du | de"* **166** *7–9!/9u "qui | espece"* **167** *18–19m* **194** *10–11m/11u "en Médie"* **197** *17m, 18u "Palestine"* **198** *19–20m/19u "Théophraste"/20u "description dans"* **203** *4–5m* **207** *1–2m/2w* conjecture *11–23m/17–20u±/7–22w* proofs of old cold climate V. Arago *25u "que | vigne", 28u "elle | point"* **208** *3–5m, 6–8m/7u/? "certainement"* **210** *20–21m* **217** *8–15m/8a "Paludius"/15u "dans | siecle"* **218** *14–16m/15u "le | quatrieme"* **222** *20–22m* **223** *3–5m/4u "plus | transmigration"* **227** *12u "Madere | Canaries", 13u "dès 1463"* **252** *20u "1383", 22–24m* **257** *5–8m* **270** *13–15m* **287** *14–17m* **292** *9–12m, 16–19m* **293** *11–16m* **295** *1–6m* **297** *5–13m/8u "de | transmigration"* **321** *10–11m* **326** *27m* **327** *1–3m, 9–11m, 15–16m, 22–24m, 26–28m* **329** *1–2m* **330** *6–8m* **331** *4–6m/6u "celui | stérilité", 8–9m/8u "cette | singuliere"* **334** *1–6m, 18–22m, 25–30m* **344** *9–12m, 24–26m* **345** *11u "d'Acosta", 11–22m, 22–25m* **349** *7–10m, 13u "l'Espagne", 14u "un | orangers", 16u "tous | greffés", 19u "demi | commencé", 20w* to sow seeds of Sweet Orange ⇑*3m/u "oranger | Sauvageon"* **351** *15–17m/ 15–16u "Dans | adroite"* **352** *1–7m* **355** *11u "1709 | Ligurie"* **357** *4–6m, 7–8m/w* in Liguria *17u "une | portât"* **359** *1–6m*

GALTON, Francis *The art of travel, or, shifts and contrivances available in wild countries* London; John Murray; 1855 [CUL, I, S]

NB1 ⟨*by FD*⟩
NB2 91 Authority; 115
2 *7–9m* **3** *1–3m, 6–13m* **4** *13–14m* **5** *23–26m* **8** *31–32m* **9** *12–15m* **14** *10–14m* **15** *7–8m/7u* **16** *5–12m* **17** *1–3m, 26–28m* **18** *26–27m* **26** *5–6m* **31** *25–29m* **35** *23–25m* **91** *16–17m* **115** *25–30m*

GALTON, Francis *English men of science: their nature and nurture* London; Macmillan & Co.; 1874 [Down, S]

⟨*markings not by CD*⟩

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GARROD, Alfred Baring *The essentials of materia medica and therapeutics* 3rd edn; London; John Walton; 1869 [Down, FD]

⟨*markings not by CD*⟩

GARROD, Alfred Henry *The collected scientific papers* London; R.H. Porter; 1881 [Down] ℘

GÄRTNER, Carl Friedrich *Beiträge zur Kenntniss der Befruchtung der vollkommeneren Gewächse* 1. Teil; Stuttgart; E. Schweizerbart; 1844 [CUL]
cc, cs, dic, em, f, fg, gd, he, hy, in, is, mhp, no, oo, pat, phy, sp, sx, t, ta, tm, v, wd

NB ✍ ♣✏ N.B. p 137. on varieties of Verbascum crossing ✏ used
p.212 Fruchnoten ⟨*ie Fruchtknoten*⟩ = Germen; griffel = stylus; narbe = stigma
SB ✍ Oct. 1855 This book abstracted & abstracts & references distributed.–
SA1 ⟨*pp. 622–3*⟩
This is Index of whole volume
p75 on Honey to p92.
p.104 on time of shedding pollen
to p119 on contabescence
to p128 on richness of pollen; 137 on pollen varying in species & individuals of Dianthus
p137 on fertility of vars of Verbascum according to colour
to p.148
p.220. p222
p242; p250 on concepcion. to p. 253.
p.328 on periods of concepcion; to p367
p.440 on abortion p.444
See over Page
⟨*over*⟩ p528 on ♣ dispersion of Lychnis (quoted from Tausch) diurna & vespertina in hermaphroditism.– I presume the number of seed here refers to cultivated Plants
p539 on crosses taking place at distances
p.550. do
p560; p564
p571 on crossing &c to 577. do.
p598. on number of seed in Lychnis vespertina–diurna; p600
p366 self-fert often fails in ♣ Lycium, Tropaeolum, Mirabilis & Campanula & Lycium –
All these references have been recopied out into papers in ♣ Hybrid Chapter
SA2 ⟨*pp. 622–3*⟩ ❑β
136 368 386 497 – 138 – 134, 135; 136; 386 567 595
✔✎ p.128 on quantity of pollen.
135 Each embryo requires more than one pollen grain –
226 Narben-fuchte ⟨*ie feuchtigkeit*⟩ secreted from stigma at various points
236 secretion of stigma of Nicotiana took months to dry – so very different from that of Orchis.–
256 Reichenback Vol.I p.120
345, 347 quantity of pollen required for full fertilisation
351, 600 Successive application of pollen necessary
for Orchids
⟨*over*⟩
♦ In Corn & Hemp Fields & Palms clouds of pollen p107 ●
Cop
p116 Contabescence

SA3 ⟨*pp. 622–3*⟩
Dichogamy Gärtner Kenntniss s.539 on plants 6–800 yards fertilising each other very good. p551? p573–577
(Keep)

xi *6m/w* Read *7–10m/10w* Read *12–15m/13w* Read *17m/w*♦ Read *20m/w* Read *21m/w* Read *32m, 33m/33–34w* because it will show crossing *34m, 35m/w* read *36w* read, 37w read
℘
75 *2w* read *18–21w* nectar before opening of flowers **76** *5–6w* after pollen *18–19u "Wandelbar fanden"/w* secretion variable ♣, no doubt due to conditions *24u♠/24–25m/w* no ♣ secretion *31–38m/w* sometimes honey in hermaphrodite, but not in unisexual flower of same species. Sometimes in male sometimes in female **77** *7–13m/w* quite absent in many flowers **78** *14–15w* increases ♣ flower falls **79** *1–7m/w* quite sterile Hybrids have nectar **80** *1–10w* They do not seem to know about Vetches **85** *9–16m/w* does not think nectar can be accounted for by for insects alone to favour fructification **87** *9–11m/11u "Tilia europaea"/8w* No nectar!! *11–12u "Tilia | odorata"/11–14w* small & nectar do not go together **89** *wt* generally the period of concepcion, the spreading of pollen, secretion of honey, & opening of flower all together. *1–4m/3u "den meisten", 8–10m/w* often put out by circumstances *16m, 18–20w* Sometimes nectar before opening of anthers *23u "Leguminosen | Cruciaten"/23–26w* In these most nectar, when pollen is mostly or quite shed.– **90** *22–27w* Thinks no relation between secretion of Honey & density of Pollen – many Families have no nectary *31–34w* no relation in quantity of pollen & nectar **91** *1–2u♠/w* Pollen not dusted yet much Honey *3u "Dichogamen"/4u♠/4–7w* Male flowers of these no nectar – but females have *8–9m/w* castration no influence on nectar *12–14w* Absolutely sterile Hybrids have nectar *18u "Leguminosen | Cruciaten"/ 19u "Dehiscenz | Antheren"/17–19w* in these nectar begins after opening of anthers. *20–21w* But then in Legum: pollen is brushed out by stigma *26–30w* When fructification has taken place nectar ceases though pollen not shed. **95** *10–11m* **104** *11–16m/w* pollen shed before opening of flower *19–33m* **106** *4u♠/5–8m/8u "verstäuben"/1–8w* Pollen usually dispersed in air, except in families where of large size as these. *10–14w* a cloud ♣ 1 1/2 inch in diameter **107** *22–25w* clouds of pollen in corn & Hemp fields. **108** *12u "6–8"/11–15w*

emptying the anthers takes these hours.– **109** *12–13m/u "Malvaceen | scheint"/w* wind much influence **113** *23–28w* castrated flowers seldom visited by Bees, than even quite sterile Hybrids **117** *1u, 2u♠, 3–4w* Contabescence of anthers *17–19w* colour often changed of anther *27u♠/26–27w* sometimes filled with Water *28–29u♠, 31w* grain ill-shaped **118** *31 l/1–3m/w* even no pollen anther shrivelled up. *5–8m/w* rarely sometimes only 1 or 2 anthers or 1/2 anther thus affected *13–16m/w* Generally all flowers affected *17–22w* When one flower has one another affected, all flower more or less affected. *25a "superbus"* Europe *25–36m/33–35u "Wenn | haben"/26–27w* gradations in contabescence *29a "barbatus"* Germany **119** *wt* N.B The contabescence probably due to effect of conditions on parents, at least in many cases.– *1–4w* these anthers can be perceived at earliest period of development *10–12w* affections permanent in individuals *14–15w* except in Silene *17–19w* cannot be altered by cuttings &c or in new soil &c *19–20u/a♠* Europe, England, Germany/*w* These species continued so for 4 years *22–23u♠/22–31w* a plant taken out of wild of Lychnis did not alter in the least. *22–31w* Nor did these alter when moved from pots to plain ground. ⇑*8–5w* Doubts whether hereditary, for experiments give different results *1–25w* This is a point of resemblance to Hybrids which keep sterile during whole life.– *wb* A All this vehemently against my notion of change of conditions, indeed, almost disproves it.– I am not so sure any peculiarity wd be propagated by layers○ **120** *7–10w* concludes since an individual in earliest stage.– *10–15w* seems to occur in all plants, but more common in some than others, & most common in Hybrids. *14u "Caryophylleen"/w* most common in free & cultivated Caryophyllea *18–19w* next cases *20a♠* England, S. Europe, Britain, Italy *22–23u±, 27u♠, 28–30m/→/28u "Unfruchtbarkeit | Gewächse", 34–36m/w/wb* In these female flowers, sometimes stamens occur in same state as the contabescent flowers **121** *17–28w* In these, contabescence hastens conception period, & praecosity of stigma always connected with contabescence; yet perhaps not necessarily allied **122** *8–23w* Contabescence has no destroying influence on female organs: but this not universal, for has observed instances with both sexes imperfect, very in → ⟨*to "Verbascum", "Dianthus"*⟩, *12u♠/10–17w* These species with quite sterile stamens produced normal number of seeds & no more *wb* Contabescence no effect on lengthening life of plant, even when conjoined with female impotence **123** *wt* [Must never forget the great fact that exotics most subject to these affections.] *1–5m/w* above shows that contabescence confined in its action to the stamen alone. *7–10w* Generally female organ not affected, when stamen are contabescent *20u♠/16–22w* many have attributed this affection to planting in damp earth; but his found in light sand on mountains *26–30w* These plants produced more pollen when nourished by pure water. *wb* (no doubt cause of contabescence, must be very early in life of plant, we know that state of plants one year determines its fruiting next year C.D) **124** *2u♠/2–17w* These plants were quite sterile for 4 years on female side but produced pollen.– affects from it became quite contabescent & female organs remaining sterile ⇑*16–1w/wb* 3 of this plant was quite fertile & all flower & ♣ twigs which had flowered were cut off, & then all the flowers which came were more or less contabescent & many with precocious stigma & small corollas: (a) subsequently perfect flowers were again produced.– (b) Repeated same experiment with same results next year **125** *14–16m/w* (a) note on last page *24m/w* (b) *26–28m/26–33w* never saw a male of this species with contabescent anthers, thinks therefore state is connected with hermaphrodite condition **126** *5–12w/→/wt* Thinks that contabescence of Hybrids & pure species must be something distinct. It is evident there is no difference in appearance in the two classes of facts *12u "Treviranus"/14–19w* Trev attributes to fungi; G. inclined to think this is a secondary cause. Leaves it all unexplained **127** *wt* Pollen when some degree ◊ part gathered & placed in water or in transplanted plants, but female capacity much more easily injured – *1–11m/4w* (a) **128** *wt* I do not doubt this shedding has caused belief in impregnation in closed flowers C.D. *1–3m/w* In these anthers shed pollen when closed. A *12u "ungekörnter"/11–13w* ungrained pollen powerless *23–24m/23–30w* Richness of pollen always great [I think can only be explained by crossing.] Of course dioecious & Monooecious plants must be excepted ⇑*3–2u "8–10"*, ⇑*2u "80–96"/w* has ten times too much **129** *32–34m/w* some monoecious plants little pollen **131** *29–35w* no relation between size of stigma & quantity of pollen **132** *29–33m/w* quantity of pollen has no relation to wind or insects **133** *7–8m, 10–*

12w little pollen few seeds *20–22w* few seeds richer in pollen *31–32w* many seeds little pollen **134** *6–7w* many seeds much pollen **135** *11u "ein Eychen"/11–15m* **136** *12u♠/13u♠/ 12–16m/w* great size of pollen; yet size varies greatly in some of the species. *24–28m/w* size of pollen no influence on hybridising *30u "Kleinheit | Unförmigkeit"/31u "bestimmten"/ 32| |* **137** *11–13w* Pollen different in Petunia *16–21m, 21u "Tulpen", 16–25w* Pollen generally same throughout genus but different in different species of Dianthus & in varieties *34–36m/31–35w* most important compare Kölreuter experiments & Gaertner's *wb* good pollen known by bright colour as well as regular shape **138** *25–35w* Proved that pollen in same species of different shapes, but G. doubts whether all effective **145** *15u "Caryophylleen", 16u "48 | kräftig", 17u "Conception"/w* 4–6 days *20u "dritten", 33u "9."/w* 9 days **147** *6–16m/w* Henschel's cases in fact showing natural crossing; did Henschel castrate? if so useful facts.– **148** *9–16m/w* in water all the grains do not explode, but some become transparent **153** *wb* Finished from 104 – to 153

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220 *21–37w* N.B When many pistils, then number variable [when many of any organs apt to be variable; Why. Hairs &c &c vertebrae of serpents] *wb* Nature does not keep count **222** *15–22m/w* says anthers open in Labiatae before flowers open & implies impregnated then **226** *11–15m* **229** *wb* Read to here **236** *9–11m* **241** *9w* Read **242** *5–12w* concludes ♣ all C.C. Spengels dichogamy depends on the abnormal praecosity of pistil!! **247** *28–35w* Mere opening of stigma of Mimulus does not show yet ready for impregnation **250** *17–26w* power of conception varies in individuals. sometimes absent without apparent cause **251** *3–7m/2–13w* want of power of concepcion most often observed in exotic from <u>warm</u> countries. as in examples. but sometimes observed in home plants. *17–28m/w* influence of fresh air, & light seems necessary to fertility of some plants, as in these when placed in pots in chamber, though pollen was produced. *27aτm/w* (a) ⇑*4u/wτ, wb* unhurt roots appear very important for concepcion for plants ♣ if they have not ♣ mourned over transplantation, But seldom give good seed.– has often experimented on this.– **252** *wt* In many cases Plants in pots with roots coming out of vent-hole in bottom, taken up with greatest care, & with pots placed in saucer with water, though development of flower continued as much & pollen good was produced, yet ovarium was ♣ remained undeveloped & unfertilized – so never in cut-flowers in water **253** *wt* But Digitalis has stood transplanting out of open ground into pots, & has yet retained capacity of being fertilised.– *1–7m/w* (a) *wb* Chester Read *wb/ → ⟨to "Brassica Rapa"⟩* But roots were left p333 *wb/→ ⟨to p. 252, 23m/ 31–34m⟩* cases of Coniferae producing seeds in cut flowers & cases of Monocotyledons plant doing same.– **328** *1–14m/w* From general way of speaking of coincidence of stamens & pistils evidently does not believe in Conrad Sprengel *23–28m/w* In these Fam. pollen shed & partially spread on stigma before flower opened ⇑*8–1m/w* occasionally within flowers **329** *1–6m/w/ wt* In these sometimes corolla ready before stamens *9–18m/w* Pistils generally ready after stamens ⇑*7–3m/wb* The relation of development of flowers & organs of fructification not very fixed, especially in Exotics **332** *11m, 13–20m/w* From this it almost follows that artificial self-fructification was done in House **333** *1–2m/wt* Many plants more fertile in wild state than in Garden or greenhouse. *11–12u "Gräsern | u.s.w."/13u♦/ 14u♦/15w* Nothing *5–15m/w* In some, rich food makes more seed, in others a withdrawal of food. In former, those with dark. *16u "Henschel"/w* Has written on the above **335** *11–12w* aid of insects overrated by some, underated by others *13–14u "Labiaten | Irideen", 35–16m/20–25w* admits to considerable extent service of insects in impregnation *wb* Ch. Morren worth reading **336** *22–31m* **337** *4–16m/w* In most flowers stamens & pistils so near together that by the twisting of anthers must be impregnated; & the co-temp ripeness of both bears on this point. *20m* **338** *12w* Campanula **344** *11–16m/ 14–15u/11w* Kolreuter *22m, 25–27m/24–31w* In these genera, one stamen suffices to impregnate all ovules *2u "Geum"/w* 1/8 **345** *23/w* 10 pollen *26–27w* failed *30w* 20 pollen ⇑*2–1w* 30 gr failed **346** *wt* Malta *1–16w* Some grains seem used to exact position of capsule &c *5u "Vierzig"/w* 40 *15–16u "die | versehen", 18→ ⟨to p. 347, ⇑10⟩, 21–29w* In Malta 40 grains required for even imperfect impregnation **347** *6m, 23w* S. p.351 ⇑*9w* saturated **349** *6u "15 | 20"/7w* failed *14–15u "30 | 35"/w* failed *26u "vierten", 34u↔* **350** *36u "nicht | von"* **351** *5–8m, 16u "wiederholte"* **353** *11m, 27–31m/w* signs of fructification slower after evening fructification than after morning fruct. Is not this like Hybrids.– **358** *32u♠/31–36m/w/wb* became more fruitful & almost exclusively female by the destroying of male flowers – Bernhardi has observed opposite in Cannabis **364** *⇑8–1m, wb* When seeds few number constant, when many seeds variable.– Law of variability – Lower animals, generally most vegetation. **365** *1–10m/w/wt* (a) In artificial impregnation number of seeds ♣ often more variable, accounts for it by isolation out of free air *11–15m/w* But in some cases can hardly account for difference *17–20m/w* some ♣ are as fruitful in Chamber as in free *22w* not castration *wb* All above shows how easily & inexplicably fertility is affected– *↕w* All these observations show that he must have considered all causes affecting his standard of comparison for Hybrids *wb* ☞ p.600 important experiment showing the repeated application of pollen necessary for full impregnation & this is not done artificially **366** *13–15m/12–23w* How observed pollen out of another individual in these 3 genera more efficacious ie advantage of crossing – *⇑11–1m/wb* artificial self-impregnation often entirely fails, for reasons quite inexplicable – Very odd that he never seems to have included Primula in this Category.– **367** *6m, 11u/wτ, 12u "verharren", 14u/wτ* **439** *wb* Read & skimmed **440** *15–18m/w* Thinks quantity of pollen merely for security of impregnation. *20–23m/w* But pollen is perfected. **441** *19–23m/w* abortion commoner by artificial than in nat. fruct. **442** *36u "500 Eychen"/33–36m/w* In polyspermous plants, always some ovules abort.– *¢¢* **443** *13–14u♠/17u♠/12–35m/18–26w* curious experiment try to remove fertile flowers & see whether sterile wd become fertile **444** *28–33m/w* cuttings &c give plants apt to abort *33–34w* luxuriant fruit **459** *36m* **528** *⇑20–3m/w* p618 Tausch in Flora 1833 p.225 **533** *23!!* **535** *26–32w* 1 2 3 **539** *wt* above 500 experiments we thought it sufficient if our experimental plants were from 6–800 steps from their like kind, when castrated, but was much deceived *8–11m/9u "hinreichend"/w* (a) *11–12u "der|hatten", 16u "zwei"/w* 2/2 flowers *20–22c↔/w* 0/2 *23–25w* 3/5 flowers gave good seed *31w* 2/2 *35w* 6/9 **540** *↕w [numbers of flowers giving good seed, as previous page], ⇑3–2w* 25 were impregnated *wb* In these castrated flowers no doubt stigma wd remain far longer ready for impregnation than in hermaphrodite yet it shows how much pollen of same species is carried to same flower (V. p145) **550** *table.w¢¢, "After-befruchtung 202"/w* Very striking this many out of 520 flowers dusted with foreign pollen *wb* No doubt others refer to pollen left in flower or brought from outside **560** *⇑4–3u♠/w* Is this Lilac, if so no seed. Yes it is **564** *9–10m/12u♠/8–17w* Many exotic plants produce fruit but no seed, rather owing to bad pollen than female organ.– **565** *zt* **571** *34u "Frühzeitiger"/34–36m/33–34w* precocious good word *wb* Power of concepcion in frühzeitig stigma causes impregnation before flower opens **572** *2–6w* stigma in such cases goes on growing *20–26w* chief cause of after-befruchtung lies in act of Castration. **573** *10–12m/8–15w* has observed after fruct in Nicotiana when 80–100 yards distant; on account of fineness of pollen.– *16m/w* read. **574** *5–35m/13–15w* all cases of after fruct. *16w/26w/29w/32w/wb (number of species and genera totalled)* **575** *2w/1–4w¢¢, 12–14m/wτ* **576** *4u "520"/6u "202 Afterbefruchtung"/wt* 499 (remains 29 whose seeds did not grow) *wb* 8 **577** *wt* 8 *31w* 70 *wb* The fewness of these after befrucht have compared with those given before in experiment out of doors, show that the latter received pollen from other flowers, I think **598** *5–9m/7u "234"* **600** *5–17m/w* repeated impregnation necessary to full impregnation of Tropaeolum **604a** *23m/w* Kolreuter on Contabescence *25m/w* What books is this of Sprengel V. Pritzel (I have looked & there is none) **610b** *26–27m, 30–33m, 34u "1838 Vol XII"* **611b** *6m, 36m* **618b** *41–47m, wb* on distribution of some Lichnis○ **619a** *3m/wt* Mustel on fruit in glass cases not having seed

GÄRTNER, C.F. *Versuche und Beobachtungen über die Bastarderzeugung im Pflanzenreich* Stuttgart; 1849 [CUL]
af, br, cc, che, cs, ct, dic, ds, em, ex, fg, gd, h, he, hy, ig, is, mhp, mn, pat, phy, oo, rd, sl, sp, spo, sx, sy, t tm, v, wd, y

SF ✍ Oct. 1855 ♣ This work is abstracted & abstracts distributed, except the Bundle herein enclosed.
✏ p521 top. p524 on germination of Hybrid seed. & all seeds.
The abstract has been carefully compared with those of all Kölreuter & Herbert &c &c &c
NF1 Gaertner Bastard When read make Abstract; & read one abstract of Koelreuter & make abstract of Herbert & look over Portfolio When finished read Berkeley Criticisms on ...
NF2 I think began Sept 15/54/
1849✍

NF3 p602 Mothers name first
p.444 Definition of Gemischte & Zusammengesetze Bastarde & Ausnahmen typus
p502 Better definition & examples
Griffel style
p.602 Nicotiana glutinosa female mother – perenne male father
p429 Explanation of Kolreuter "aufsteigenden Grad" absteigenden grad p.451
NB Books of great importance to Refer to Note 62 67 17 p.734 of this Book
p.157 Seeds long retaining vitality
p142 See to this important
p577 fertility of dogs
Has he ever experimented with the umwandelung of Varieties?
✍ p.640 Genera which produce good pollen & ovules & yet require pollen of other species to fertilise them
p.418 Ask Author
p.387 Digitalis for comparison with Herbert
There are facts on variation.–
Ask Author: p.84 Were any of the Mongrel Peas reared? p.92(?)♦ Stet p.102 =Table of Primula= p577 p578 p.579
86 duration of pollen
322 Maize p292
Treviranus ought to be read. He seems a Lamarckian.
SA1 ⟨*p. xvi*⟩
The real odd thing is in Hybrids, that not ♣ varieties not thus affected & 2d that offspring are sterile.
Does he give any case of two wild varieties when crossed, producing a more variable offspring than two true species? in first generation, because the difference in variability he makes so important distinction in vars & species (p581)
⟨*over*⟩ Hybrids
Does pistil or stamen ever become monstrous?
Stigma ♣ becomes more divided
In Hybrid offspring Does Male sex sometimes fail & sometimes female or always both equally? which more often
Relation of Hybridisation to Variability
Dissimalirity of Mongrel offspring
Did Kolreuter cross many Silene vide p.140 of Gaertner?
Do not two Hybrids breed easier together sometimes than each with self – for this wd upset Gaertners explanation of weakened pollen.–
SA2 ⟨*pp. 728–729*⟩ ✍
✏ For p.178
⟨*a list of species, and some editorial comments*⟩
⟨*not CD; note on application of the terms "calycantha", "communis", "veris" and "officinalis"*⟩
✏ (C.C. Babington)

vi *17–21md* **viii** *26–29m/29u "Uebereinkunft"/w* great agreement in animals & Plants in Bastardising **xi** *6–7m* **xiv** *21m* **xv** *15w* Compounded **5** *11–12w* confirms Köelreuter **7** *15u/wτ* **8** *7–19m/w* under apparently similar circumstances produce difft quantity of seeds. Hybrids few seeds *26–27u↔/24–28m/w* these have succeeded only once or twice. **9** *12–14m/w* cause of failure chiefly in female organs. **10** *1–2m, 5/7/8u/wτ, 21–22w*♦ Herbert p.371 *22u/wτ, 25–29w* all injurious influences more injurious to hybridising. **11** *wt* N.B. As damp & rain so injurious to fructification it makes it odder that flowers are not ♣ regularly impregnated in closed state, for they can be impregnated haufig in this condition. In cases of Campanula which are impregnated in bud, are these foreigners? & wd they open in own country. *11u "häufig* | *Blume" 12u "bloss", 14u/wτ, 22u/wτ, 25–29m, 31u/wτ, 33u/wbτ, 34–35m* **12** *10–12m/w* some effect of variability on hybrids Q *14–17m/w* no great difference in hybridisation of wild & cultivated *19u/wτ, 28–31m/w* Disputes Herberts case of fertile hybrids *35u/wτ, 35–37m/w* thinks has mistaken the fertility of some hybrids, with the results of a first impregnation. **13** *1u/wτ, 2–5w* some hybrid fruits are richer in seed, than the fruit produced by first union. *3/6/9/23/27/31u/wτ* **14** *30u/wτ* **15** *5/10/24/26u/wτ* **19** *21u/wτ, 23–26w* condition of pollen on stigma changes sooner or later according to relationship **21** ⇑*1u/wbτ* **22** *9u/wτ* **23** *5u/wτ* **28** *17–21w* fruit falls off, from imperfect impregnation **29** *6u/wτ* **30** *wt* It is not Hybrids – but Hybrid-fructification. Most important distinction which I have overlooked. *18–21m/w* Hybrids never produce full abundance of seeds. *21u/wτ* **32** *7–10w* Hybridisation requires all outward circumstances favourable. **34** *7u "fremden"/w* Never the least effect.– **35** *23w* no mixed effect *31u "rustica"/w* female prefers paniculata *32w* female *33–34w* prefers Langsdorf **43** *22–27m/w* pure & hybrids out of same capsule, but no tincture. **45** *11/27u/wτ* **46** *5–6m* **50** *1–8m/w* Q case of variety with characters like other species *3u Ansätze* | *Zähne"* **52** *10u "dreifach* | *gemischten"/8–10w* 3 sorts in same capsules **55** *18–22w*♦ Herbert believes in tincture **56** *1–16w* This is what might have been expected mere physical difficulty?? *17–28w* This slowness is important as it is character in parents & not in hybrid. *29–32m/w* injures the other ovules **58** *28u/wτ* **64** *10u "einem | Pollen", 12u "rustico | Langsdorfii"/7–14w* In Hybrids father or mother's pollen makes own powerless. so does quite foreign pollen sometimes *15u/wτ/16u "erotischen", 20u/a "Lobelia"* Example *15–22w* In some pure, specially exotics, own pollen will not impregnate, whilst that of other undivided, or even other species, get own pollen good.– *28u "W. Herbert", 28u "Zephyranthes"/27–31w* p.355 so Herbert with Zephyranthes but not good example see xx next Page. *32u "Bosse", 32a "Hippeastrum"/wb* Amaryllidae p.371 – in this case it is Hybrid with hybrids *33–34u "Passiflora"* **65** *wt* xx This like Herberts Zephyranthes case; P. racemosa can be fructified by pollen of coerulea, but stigma of coerulea cannot be fructified by pollen of racemosa or by its own – we may say female organ of coerulea injured. *3u/wτ, 5–9m/w* xx *10–12m/w* takes the view given above xx *13/14/19/25u/wτ, 21–23m/w* compares with snails **66** *28–31w* seldom any pollen has no action on stigma **67** *5–9m/w* sometimes stigma decays & flowers fall without slightest fructification. **68** *16–20w* gradation of affinity shown by time of decay of stigma & flowers **69** *27u/wτ* **72** *9–19w* Thinks the fruit of hybrids is not due to pollen-influence, but to that power of forming fruit, which the most sterile hybrids without any pollen do produce Repeated p106 **73** *1–3m/w* mother not more powerful than pollen *13–15w* Hybridising generally no effect on seeds. *22–24w* apple half sour half sweet.– *28/29/31–32u/wτ, 29u "liess", /–34w* castrated pear-blossoms in orchard bore much fruit, showing crossing *35m/w* thinks experiment not careful enough **75** *10u/wτ, wb* Disbelieves (perhaps very truly) all these cases of direct effect of pollen on the mothers fruit.– **76** *11u/wτ, 19u "Pelargonium"/w* Q✍ sport in *23u♠/w* sports in *24u♠, 28u♠/w* sports in wild **77** *2/5/9u/wτ* **78** *1–5w* Discussion on Koelreuters 3 cases of seeds directly affected by Hybridisation. *14–15m/w* seeds vary much. *wb* Disbelieves seed ever really affected; the only difference he has ever observed being solely in size.– **80** *wb* see p499 & p135 **81** *↕w*♦ This most important, ♣ if crossing varieties ♣ has had anything to do with diverse coloured seeds, then they are crossed naturally by Bees.– *wb*♦ Has tried Wiegman experiments with quite different results, ie seeds never affected see next several Pages *⇑10w* All a mistake. *⇑7–6m/⇑6u "reine"/w*♦ The self-impregnated flowers gave same result as the castrated & cross impregnated & these showed colours altered **82** *1–2m/w* most constant vars. *19–25m/w* here seeds were coloured *28m/w*♦ were these mongrels **83** *2–3/5/10/16/34u (colours of seeds)* **84** *1u/wτ, 20–24m/22u/wτ* **85** *10–11m/w* & Berkeley's *10u/wτ, 13u±/w* see account p.14 *15u "geringer Fruchtbarkeit", 18–25w* plants from Wiegmanns Pisum oticia he rather thinks varietats-Bastard rather than a hybrid, because, flower impregnated with common impregnation & pollen of Vicia had no effect. *29w* ie offspring of Wiegmans Piso-vicia **86** *25u "sondern | war"/w* Conclusion mere variety, & says nothing about mongrel. *30–33m/w* cd not make any of them cross. *31m/wb* Loudon makes these distinct species besides vulgaris **87** *1u/wτ, 6–8m/w* Leguminosen opposed to Hybridisation *8–12w* If then mongrelising takes place easily; yet cannot at all between Wiegmanns hybrids *13–15m, 18a "annua"* Cruciferae *18–21w* W doubts about seeds in Matthiola what to say *19/21/23/25u/wτ, 33u "einer | die"/31–35m/wb* Mays not affected **88** *wt* also Berkeley did not artificially cross.– **89** *wt* xx It seems he does fully admit that cross fertilisation does in Pisum affect seeds, & as Wiegmann did not artificially impregnate, shows that Peas, when ♣ not castrated, are crossed naturally. Be sure read Book mentioned in note 62 p734 (How strange considering sweet Peas) *9xx, 12/15/21u/wτ* **90** *17–19m/w* female sterility transmitted in cross. *17/18/19u/wτ, 30–35m/wb* The tinctures on half-bastards of Koëlreuter, Wiegmann & Herbert are upset.– **91** *10–17m/w* Father & Mother element more powerful in some *11/16/17u/wτ, 21–26w* Hybrid pollen more effect on own stigma than on other pollens; but the converse no effect *31–33m/w* another severe case of different effects. **92** *8u "Lychnicucubalus"/w* Hybrids, I suppose *10u "Lychnis diurna", 22–24w* colour & size of pollen no relation to fructification *28–30m/w* most important see his other work. *28u "Varietäten"/wb* speaks p181 of species so holds good with species too From table at end really species *30u "fruchtbare"/wb* more fruitful, ∴ crossing cross colours less fruitful ∴ perhaps Hollyocks thus accounted for. So he says most distinctly in his Beitrage p137 in regard to Verbascum. **93** *19–20w* (a) *wb* (a) Koëlreuter ♣ confused imperfect impregnation in the first cross, with the imperfect fructification of Hybrids, but this shows how similar the case is.– **94** *5–12w* imperfect fructification differs from no fruct, in seeds being more perfect *7u "Grösse", 9–11m/10u "ohne* | *worden", 17–20m/u±/w* first cross ♣ never quite fertile as of cross of pure species. **96** *10–12w* no relation in state of capsule & state of seed. *17–27w* fertility of original act of hybridisation so different, that even in flowers of same plant, that it is difficult to make scale of fertility or consequent relationship. *wb* (a) ♣ Grades of Fructification, imperfect to normal & perfect pollen no more effect than foreign dust; occurs even not seldom in species of same genus, "from want of sexual affinity"– (mere words) **97** *3–4u*♠ **101** *16–17u "er* | *aus"*/Q *20u "schwachen* | *Leben", 21–24w* out of many imperfect seeds & 1000 buds apparently perfect, ♣ not one germinated. *25u "nicht* | *gekeimt"* **102** *1–2x/wt* every gradation of imperfection in capsule with one or more seeds, capable of germination. *4–7m/w* Important *7u/wτ, 12–14m/w* most fertile hybrids **103** *2u "Sageret", 1–2w* See to this Annales des Sciences Nat **105** *2–6m/wt* can the effect of pollen of plant in producing capsule be analogous to Ld Moreton's case? **108** *11u "Morton", 12–17m/w* Morton attributes power of hybridisation to capacity of domestication.– **109** *9u "grosser"/8–9w* greater number will not hybridise *11u "700", 12u "250" 12a "Bastarde"* different sorts? ⇑*14u "versagt",* ⇑*13–11m/w* unions which failed with Kölreuter **110** ⇑*15–14u "eine* | *Elemente"/w* a certain sexual harmony necessary for union.– (I presume in contrast to general affinity) ⇑*4wτ,* ⇑*5–3w* pollen does not adhere to stigma **111** *8–15w* even when pollen does cling to stigma fructification very often fails In hybrids the stigma fails ⇑*10–9u "wie* | *scheint"/w* (a) ⇑*10–9w* Only certain individuals can be hybridised *wb* (a) I cannot but think hybridisation commoner with animals than plants.– **112** *3u/wτ* **113** *11u "Prof.", table.w* shows natural crossing ⇑*10w* 14 genera ⇑*9u "Alle* | *Samen",* ⇑*9–5m* **114** *10u/wτ, table.c/w* no scarcityO *table.w* List of Families which have admitted of hybridisation **115** *table.m/w* failed with these, but experiments not numerous enough to show cause.– **116** *table.u "Primuleae"/w* easy *table.w* Fams. of easy manipulation *5–7m/w* capacity for hybridisation not liesO in Family Character.– *10u/wτ, 13–18w*♦ In families with regular species, subdivided into not real genera, most hybridisation *19u/wτ,* ⇑*9–8u*♠/⇑*11–6m/w* The spec of most natural Families very ● resist hybridisation ⇑*2u/w* No hybrids in Compositae **117** *22u "Apocineen"/w* is not this ♣ Vinca *25u/wτ, 26–30w* thinks Orchideae & Asclepiadae wd be hard to cross. from structure of flower **119** *7u "Gymnogramma", 17w* Disputes from hybrids, thinks only variations observed only in Gymnogramma **120** *16–20w* Dioecious less easy hybridised than hermaphrodite **121** *3–5m/wt* The capability of ♣ fructification ♣ lies in more special character, than those characterising any whole family *2–4m, 13m* **122** *2–10w* No distinct relation between polyspermous & oligospermous plants & capacity for hybrid. fruct.– **123** *wt* Dioecious plants a longer capacity for impregnation. *wt* I see uses Dichogamous = Dioecious *1–2m/u "in* | *Blüthe", 4u "neun", 5u "zu Conceptionskraft" "Lecoq"/w* a book on Hybrids ⇑*11–9m/w* (a) *wb* (a) Dioecious plants less capable of Hybrid-fruct: at least than some hermaphrodite **125** *7m, table.w (asterisks added)/w* other observers have suceeded, though he failed **126** *8wτ, 9wτ,* ⇑*6–5u "Aquilegia"/w*♦ Hooker thinks all same species ⇑*10–1w/wb* closely allied genera differ greatly in tendency to hybrid-fructification several examples & I believe quotes Kolreuter but observes only few species in each experimented on.– **127** *6–12m* **128** *2nd table.m, 8wτ, 10u "Afterbefruchtungen", 13–14u/wτ, 15wτ, 3rd table.m/w* All this shows that when anther removed, how much crossing can take place from adjoining plants – i.e. intermarriage **129** *1wτ* **130** ⇑*11–10m/w* I do not know whether Kolreuter or self. he suceeded anyhow. ⇑*7–5u*♠*/w* Dichogam crosses ⇑*1u "wiederholten Versuchen"* **131** *1wτ, 3w∉, 2–3u "vergeblich* | *hatte"/m/w* (a) *wt* (a) Reverse case which always failed with Kolreuter succeeded once with him,– but was very difficult Hybrid Plants no ways different – *14w∉* **132** *4–12w* none of these bigeneric seeds germinated. though some had embryo ⇑*10–4w* only ones known Bigeneric crosses *w∉* **134** ⇑*8m* **135** *11–14m/w* universal law that pollen of parents fructifies hybrids more then own. *20w∉* **136** ⇑*3–1m/u "Canis* | *Mouflon"/wb* ram or he goat **137** ⇑*3w∉* **138** *wt* (a) Against limit of genus being determined by power of crossing, even Herbert does not pretend all species can cross, though when any true species do cross, he says they must belong to same genus – so the "reverse crosses!! & cases of Crosses which after years succeed only once, go against law of genus by crossing being connected. *8–22m/12–15w* sense given above (a) ⇑*3–2u "inneren* | *Arten"/a "in"* power of uniting depends on **139** *1–2u*↔*/w* Hence a sexual & systematic relationship *15w∉, 17–20w* genera formed of diverse ♣ characters **140** *wt* When two genera have united, the species do not always in these genera readily unite. Tormentilla & Potentilla, though so close, will not unite. *1w∉, 1–3m, 6–16m/→, 17–30w* it is quite wrong to infer because some species within a genus, will cross that all will; generally only a few. Herberts cases, however, rather contradict this. Hippeastrum, Azalea, Calceolaria **141** *wt* (a) Sections of genera will sometimes unite & sometimes not *1–5m/w* (a) ⇑*18–10m/16–14w* Sections of genera ⇑*8*/⇑*6w◆∉*, ⇑*6–5u "blauen | gelben"/m*, ⇑*1u♠* **142** *8–12w* in his Treatise speaks of species see to this *9–11??, 12m/u/w◆τ, 13/15w∉, 13a "Pepo"* pumpkins *14a "Citrullus"* Water melon *15–17w* Girou succeeded in these *15wτ, 19wτ, 20–30w* The list of sections of genera which will not cross, shows no necessary relation of genera & crossing.– **143** *6u±/6–15w* sexual affinity belongs only to species, & often to only individuals, & cannot be externally recognised. Different Times of flowering do not prevent hybrids. ⇑*3–2u◆*, *wb◆* Bush with plant? **144** *1wτ, 3–6w* annual, biennial & perennial cross. *16–19w* evergreen with deciduous cross *21wτ, 22–32w* many hybrids wh succeed in summer, & fail in Autumn – some succeed so seldom may be called accidental. ⇑*2–1m, wb* the most different varieties can cross.– **145** *3u♠/w* can cross *14u "Lecoq"/w* see to this **147** ⇑*12–10u "Nicotiana | glauca"/15–7m/w* Pollen of some plants can impregnate others, but not be impregnated by them. ⇑*7–1m/w* case of Nicotiana which will neither impregnate or be impregnated by other close species. *wb*✍ 8 specs **148** ⇑*1u "jene"/wb* species **149** *wt* Van Mons thinks stability in first generation & variability in first distinctive character of species. *1u "diese"/w* varieties *8–11m/w* analogous to some organisms not varying in domestication *8–10u±/9–15w* some hybrids as these keep constant in 7th & 8th generations but this rare.– *14wτ*, ⇑*12u "Blyth"/w* see to this ⇑*10–9wτ*, ⇑*3wτ, wb* I had better give cases of closely allied & identical species in different climates to show species, & very different species in similar climates to show not direct effect of climate **150** *1wτ, 1–15w* I quite agree very near or identical species may have been created, but this has to be decided. *14m/u/wτ, 20wτ, 17–22m/w* (a) *20–30w* Seems to agree with Blyth, I must study him – *wb* (a) A great power of place – attraction has no relation to geographical range.– in direct opposition to my view, but agrees with Hooker on Compositae. **152** *9/11wτ* **153** *5/6wτ*, ⇑*10wτ*, ⇑*1u↔/w* genera with many doubtful species **154** *2/6wτ*, ⇑*7*/⇑*6wτ* **155** *18wτ*, ⇑*5wτ* **156** ⇑*12*/⇑*11wτ* **157** ⇑*4–1m/w* seeds long retaining vegetating Power **158** *1–12m/8–12w* Wheat-seed identical ⇑*14–8m/w* These plants identical before So cross with recent. **159** ⇑*17–13m/w* says varieties go back **160** ⇑*15wτ* **161** *1wτ*, ⇑*8wτ* **162** ⇑*17wτ*, ⇑*9wτ* **163** *10wτ, 15u "nahe verwandte"/w◆* hybrids from close species when united with another, show their differences even plainer than whilst pure *8–11w* I think it means only the result of A.B.C where χ differ from each other (a) *15u "nahe verwandter", 18–19u "z. | fulgens"/15–21m, 21–22u "geben | Bastarde", 22–28m/w* Remarks This very odd if these close species descended from common ancestor. ⇑*8–3m/w* The existence of species consists of fixed sexual relation to other species *wb* (a) Is there any case of two close vars. when united to a 3d var. producing very different mongrels. **164** *11wτ, 16wτ, 17–18u "die | fruchtbar", 16–20w* Kolreuters Law of sterility can hardly be accepted. *24u♠/w* do they seed? *23–30w* These 2 Penstemons though so like, as to be considered varieties, cannot be crossed. *wb* ☞ || rarely certain individuals will not be impregnated see G. Beitrage. **165** *5wτ*, ⇑*17–13m, wb* X There are two P. gentianoides in cultivation the one commonly so called is the Hartwegi so misnamed – the true gentianoides is rare in cultivation differently shaped and not red **166** *9u "der | seie"/8–12m* **167** ⇑*14–11m/w* nearly related but will not cross ⇑*4u "H. Lecoq"* **168** *1–5w* I fancy that this is only that parents have originally crossed. *3wτ, 12u/a "Vareitätsbastarde"* I do not understand. are circumstances ♣ as the second generation of species – bastard Will explain more afterwards *13wτ, 14–24w* Holds good with some wild ♣ species which fructify each other but do not sport like true vars whereby these plants are characterised like true species. *19–26m/w* Get information on these – wild ♣ species Fertility tested by himself ⇑*6m/w* (a) *wb* (a) Genera with species agreeing in Habit, as above, hybridise most, Yet some species of these will not cross. **169** *4–8m/w* These species cross easily, yet other others of the genus, will not cross. *9–17w* Though power of crossing sometimes goes with external resemblance yet the most natural Families & genera as here do not hybridise well.– *14–*

16u♠, *⇑13wτ*, *⇑12m/w* Hybridises differently **171** *2u "Umbellaten"/w* No Hybrids tried on Umbellifera *⇑16–12w* Thinks wd hybridise from being so variable *⇑9u "Cruciaten"/⇑9–5m/w* all failed **172** *⇑17u "Labiatae"/17–10w* Labiatae little tried, but I know that Mimulus has succeeded **173** *1–4m/w* Most Natural Family *9–11m/w* all failed *⇑10u "Sageret" "Lecoq"/w* quotes from Sageret *⇑9u/wτ*, *⇑11–9m/⇑11–1w* Sageret & Lecoq has found vars of Cucurb. will not cross promiscuously (References hardly bear out conclusion) **174** *1–6m/wt* cases of only few species in very close genera uniting, new species which are hard to specifically characterise.– *table.w* cases of very close species ♣ or more exactly, species having the same habitus which will not unite.– *⇑5u*♠, *⇑5–1m*, *wb* cases of species having very different habitus which do unite, chiefly from Herbert, except darks○ **175** *1–7m*, *9wτ*, *⇑14–7m/w* So Kolreuter shows, that propinquity does not go with power of hybridising *⇑6–1m/w* other examples of the same law **176** *11–13m/w* so says Morton of Beasts *14–20m/w* The non-success of reciprocal impregnation clearest proofs that hybridisation not ♣ result of affinity. *⇑13w∉*, *⇑11–3w* cases of non-reciprocal fructification **177** *2a "Langsdorfi"* cannot be fructified by the 4 named sorts, though it can fructify them & some easily. *10–20m/w* even when mutual crossing does take place in closely allied species, yet facility not alike (this is new) *21u*♠*/m/w* closely allied, yet unite with difficulty & will not be reciprocal. **178** *wt*♦ ||officinalis & acaulis not in Loudon.– p721 officinalis = veris = Cowslip – I see it is barely possible without consulting Babington to know which is which *wt* Here are vars which will not unite *1–2w* Most important *3–4u/wτ/w* on Babington's authority see Table *4–8m/w*♦ Compare these very difficult *10–14m*, *11–15w* very different in Habit, yet unite easily.– **179** *7–11m/8w* Herbert *10u "Cereus"*, *11u "schon längst"*, *13–19w* Cactus or Cereus Melocactus Echinocactus, Echinopsis, Phylocactus *20u "H. Neubert"*, *21–22u "Cereus|Ottanis"*, *24u*♠, *24–25u*♠, *25u*♠, *27–28u*♠, *24–28w* Neubert has succeeded in these crosses **180** *3–6m/w* Mongrels sport & he has seen same thing Cucurb. *⇑19–16m*, *⇑12–8w* Flowers very unlike yet cross *⇑4–1m/w* Colours of Verbascum **181** *1–5m*, *⇑9u↔/m* **182** *9–13m/w* These succeeded with G. having failed with Koel: *⇑10–2m/w* shape of pistil no effect in hybridising **183** *⇑7–3m/w* size of pollen no effect **184** *⇑6–5m* **185** *⇑7/⇑6/⇑2wτ* **186** *6–8m/1⇑8w* cause of Hybridising a Vital action & allows that the sexual relations is mere word *15wτ*, *19–20u "sondern|beide"/m*, *⇑12–1m/w* Summary but nothing new **187** *1–15m/w* Summary but nothing new *⇑16–8m/w* cases when fructification has taken place, once after repeated failures.– **188** *6–14m/w* cases of plants differing chemically, compare this with difference in their sexual affinity *10wτ*, *15wτ* elective affinity **189** *13–20m/w* The closer or less close affinity. is shown by action of pollen on stigma & corolla.– *⇑10–7m/w* a chain of graduated affinities **191** *10–13m/w*♦ Yet in table does not put K. but i a *15–17m/w* reverses with fewer seeds **194** *wt* Fertility of Hybrid, ♣ is in even less reation ⟨*ie relation*⟩ to affinity of parents than facility of first ♣ union or hybrid-fructification. It seems no relation between case of getting 1st hybrid & this hybrids fertility. This is case with the common Mule.– *4wτ*, *7wτ* elective affinity *3–13m*, *11u "manche"/12u "leicht"/10–15w* many plants easily cross, whose hybrids are quite sterile *11–16m*, *16u "sexuell|verwandt"*, *16u "49"*, *17–18u "waren|fruchtbar"*, *22–25m/w* and fertility of similar Hybrids very variable *25wτ*, *table.w* Hyb. fruct. of great difficulty *wb* I think Verbascum is case in point. **195** *⇑16–14w* seeds in pure ♣ parent cross *⇑15u "80|120"*, *⇑12u "paar|Samen"/w* numbers of seed Hyb.fruct. ♣ when crossed *⇑10u "151"/⇑9u "29"/wb* numbers of seeds in reciprocal ⟨*u*✍⟩ Hyb. fructification *wb* (hyb.-fruct. best expression) *wb* (pure. fructification) **196** *wt* ☞ Bad simile We might as well as deny that the different were really different, because they had no "elective affinity" (I use word of Gärtner) whereas other two had strong elective affinity & wd unite & make a third.– *4w* sexual non-reciprocity of the "elective affinity".– **197** *wt* The reciprocity of sexual alliance is not only different in strength, but is often entirely deficient *1–4m*, *6–8m*, *12–24m/w* cases of slight unequal reciprocity in very closely allied species, some even thought to be varieties. *table.m/w* cases of more unequal reciprocity **198** *⇑10–1w* cases of sexual non-reciprocity **199** *4wτ*, *14–15u*♠*/w* most striking example *⇑13w* (a) *wb* (a) Special potency of pollen to impregnate other species of genus occur in Verbascum nigrum & Geum ♣ coccineum **200** *wt* In cases of entire sterility of one side of the reciprocal union, the other side generally only slightly fertile.– *1–4m* **201** *wt* (z) || The absence of perfect reciprocity even in nearly related species, shows that male & female

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power of union do not go together: but the difference of male & female has no effect on the hybrid offspring *8m/w* (z)→ **202** ⇑*16–1w/wb* Hybrid A + b, crossed with pollen of C, hybrid is always like C. Repeated on p.273, & speculates, but does not explain says vital power of Hybrid is subordinated to the pure species.– **203** *wt* (a) N. rustica will not unite with N. glutinosa, but hybrid N. paniculata – rustica, will with glutinosa, & the character of rustica is seen in offspring.– *8–12m/w* (a) ⇑*7–5w* → do **205** *1–13w* as in Primula & Verbascum (?) But thus question of what species are is begged – *15u "Kölreuter", 16u "hybride Befruchtung", 14–17w* First cross ♣ never bring so many seeds as nat. fruct. ⇑*4u "jedem Eichen"/w* from each ⇑*2–1m, wb* Remarks that Herbert's Crinum was not growing in own climate – But he says every ovule was impregnated. **206** *2–4m/4u "Calceolaria bemerkt",* ⇑*12–5w* The number of seeds in Hybrid though dependent on conditions does not pass certain maximum **207** *wt* (a) Can judge of scale of elective affinity by number of seeds in hybrid-fruct., as compared to normal fruct. *1–18m/w* (a) ⇑*16wτ,* ⇑*9u "nicht constant",* ⇑*8–7u↔,* ⇑*2–1u↔,* ⇑*15–1m, wb* an average of seeds taken from a number good plant growing in open nature **208** ⇑*15–12m/w* seeds variable in colour & size *wb* as far I understand this, properly to count good seed, all ought to be tried by germination & growth, but then more elements of growth & death of seeds come into play **209** ⇑*11–6m, wb* on account of unfavourable conditions, we take maximum of seed of hybrid cross. **210** *1–6m/w* always requires repeated experiments.– ⇑*13–8m/w* only single instances of these unions. **211** *2x, 13–22m/w* in wild Plants number of seeds do not differ so greatly as to cause much difficulty in estimating numbers. ⇑*5–1m/w* There are ♣ differences in flowers of same plant in being impregnated by foreign pollen.– **212** *3–8w* as individuals differ in some respect, as last page, several must be experimented on.– *8–9m/u↔, 16–19m/w* cases of individual plants wh were femally sterile ⇑*14–1w* as the difference between nature & artificial self-impregnation is never so great as in Hybrid fructification; he has taken wild plants as base of calculation, which seems to me to be an error. ⇑*4–3u "selbst | käme"/wb* Effects of crossing every plant by self injurious.– see Beitrage p.366 **213** ⇑*14m,* ⇑*8wτ* **214** ↕*w* Sexual affinity calculated by maximum of good seeds till further experiments ever increase this maximum ⇑*7–1m, wb* experiments shd be tried at different times on different plants. **215** *wt* (a) Take average of number of seeds capable of germination under normal circumstances as the standard for comparison of best fruits *5u "vollkommensten"/m/w* (a) *14u "keimungsfähigen",* ⇑*6–1m/*⇑*4u "20 Versuchen", wb* very important, if this smaller number be not due to ♣ art used in the fructification. **216** *table.a "polline"* naturally ♣ impregnated *table.w* Scale of sexual elective affinity, inferred from maximum seeds from hybrid-fruct, not from Hybrids themselves **217** ⇑*8–3m/w* (a) *wb* (a) Gärtner thinks that these tables of affinity show that pure species are aboriginally formed sterile.– It is contradicted absolutely by his vars. **218** ⇑*1w* Silene of Steudel *wb* Here a genus more fertile than other species *wb* 777/7000 **219** *wt¢¢, table.w* 3 genera before other species **220** *4u "Kreuzung"/w* with G. & Kolreuter implies reciprocal fertilisation ⇑*2–1m/wb* cases of non-reciprocal fructification. **221** *17w* Reciprocity holds good generally when hybrid is intermediate in character. *20–23m/w* Reciprocal case ⇑*3–1m/w* (a) *wb* But when hybrid takes after mother or father type. then reciprocity will not take place.– This seems very curious **222** *4w* Mother type *6–9w* Father-type most numerous. ⇑*14–11m/w* (a) ⇑*7m, wb* I fancy that the predominating power of one of 2 species, as shown in the hybrid – prevents reciprocity.– But there are exceptions. **223** *1–24w* self & Köelr. find the reciprocal crosses exactly alike. *19u "allgemeine"/w* This is general rule, specially in wild plants, which are not varieties. *22–23u "Abweichungen | Farbe", 26u "Ausnahmstypen",* ⇑*10–1w/wb* Difference from animals as Mule & Hinny also hybrid animals differ in same litter; but in animals all half domesticated **224** *1–5w* Diff in animals & Plants owing to sexes separate in animals. ⇑*16–12m/*⇑*15u "Differenz | Habitus",* ↕*w* In comparison of sexes we must suppose habit the same, & form of parts direct result of sexual peculiarities. Whiskers in Man!! ⇑*7–6m/w* Hybrids varied *wb* Whiskers & Mane cannot be thus accounted for *wb* No difference in Habitus of Plants, when sexes separate (because I say do not struggle for female: so lower radiata. **225** *8–12m/w* exceptions to uniformity of reciprocal crosses ⇑*18–8w* curious exceptions in Genus Digitalis; not reciprocally alike **227** *17–20w* slight variations in hybrids **228** *14m* **230** ⇑*17–12m/w* Double flower raised from male or female **231** *wt* Differs from animals for sex no effect on

Hybrids *4–9m/w* a *10–14m/w* see to this **232** *13–19m/w* Form of hybrids stable in 1st generation *20–24m/w* → does not hold good with animals. **233** *8–10m/w* experimented with wild plants **234** *⇕w/wb* It is proved by long course of his & Köl's experiments that bastard even in 1st generation from same parents are always alike; & return in constant course to either parent when repeatedly crossed with such. → (a) Thinks this evidence of permanence of species; but I do not see more than ordinary generation keeping true; perhaps tests the trueness in another way: but a plant does not vary in first generation, when part out of normal conditions. *⇑13–4m/w* (a) Notice this argument **235** *wt* (a) Hybrids unions therefore follow same law in first generation as the union of pure species.– *5–7m/w* a *6wτ, 9–19w* Thinks the few exceptions to this normal structure of hybrids is due to variation *19–21m/u↔/w* (a) *⇑13–5m/w* (z) *wb* (a) Rather hard, it seems to me to draw distinction; but Gaertner (z) urges the resemblance of Hybrids made at same time & after long intervals from same pure parents. **236** *8–14w* The normal Hybrid type keeps constant in succeeding generations only in the most fertile hybrids, generally. **237** *1wτ, 6–14w* very rarely sometimes single sports in a set of normal hybrids out of same fruit; & *9u "einzelne | Bildung", 11u " sehr | einem", 12u "doch | mehreren"* **238** *2m/u "Digitalis, Lobelia"/wt* only genera in which these exceptional types have been observed: (z) These exceptional types from same species always resemble each-other!! *12–15m/w* (z)→ *⇑12–6m/w* on two years a peculiar yellow rare, so unlike as might be thought different kind. The mother type prevailing **239** *12–17w* From this cross obtained common normal & abnormal type. **240** *5–8w* one species of abnormal type. *wb* I observe that these abnormal types often take after one parent **242** *2–5m/wt* 2 plants of Passiflora differed from each other. **243** *6–8m/6–12w* neither father nor mother exclusive influence on abnormal types but depends on likeness to one or other. *15–17→, 19–22m/w* These abnormal are not vague, but fixed production. *⇑7–1m/w* similar unlikenesses occur in these several cases **244** *11m, 16–23w* ☞ abnormal types generally quite sterile; (this very curious) *⇑9–4w* compares these abnormal types to atavism *⇑6/⇑4wτ* **245** *11–15w* In abnormal types like both parents but most like one. **246** *2wτ* **247** *⇑16w* (a) These varieties seldom repeat each other. *⇑9–7m/u↔/w* They occur chiefly in such species as are so closely allied, as to be held mere varieties *wb* The irregularity of reappearance, & slightness of differences seem only distinct differences with his abnormal Hybrids of the previous chapters.– **249** *12–16m/w* (a) *wb* (a) The abnormalities in Hybrids has observed only in plants, long cultivated in gardens, & not in wild plants; but I remember that only one side wild in Kölreuter is sufficient **250** *⇑11/⇑6wτ* **251** *20–25w* not seldom ♣ in Hybrids one side or species prevails over other; & their prevailing is not accidental but is constant. **252** *⇑4–1m/→/wb* most difficult which of two parent-forms a hybrid comes nearest to **255** *3–7m/wt* Does not believe that Hybrids are ever unlike both parents **256** *⇑20–15m/w* cases where one side in Hybrid preponderates. *⇑14–13u♠/w* strongest instance *⇑7–6m/w* (a) *wb* (a) N. paniculata is almost lost in N. paniculata–vincaeflora, whereas in N. quadrivalvi–vincaeflora, vincaeflora is almost lost.– **257** *5–7m/w* Father type in this mixture prevails *13–16w* seldom in Hybrid two parents of equal force. **258** *wt* (a) When two hybrids ♣ unite, & one offspring takes almost exclusively after one side, hybrid is sterile. *1wτ, 5–7m/w* (a) *11u♠, 11–12u♠, 14–18m/w♦* one spec took most closely after father; was fertile. **259** *13–16m/w* Hybrids generally higher than pure; seldomer dwarfed. **261** *4–5m/w* Hybrid Verbascum generally woolly in Pots. **262** *⇑13–1w* odd that this hybrid no rudiment stamen, considering structure of both parents. *⇑5–3m/w* (B) *wb* (B) Female organ generally shows no signs of imperfection even when perfectly sterile. **264** *⇑10–9m/u↔* **265** *9u "Thiervarietäten", 19–21m, wb* The entire differences, of different authors in ascribing more or less to Father or Mother shows there no real rule. **266** *⇑15–12m, ⇑15–14"...", ⇑13u "pater major"/w* seems pretty true **268** *⇑17–11w* in Plants neither father or mother has exclusive influence **269** *⇑12m* **273** *3m, 5u "oben | 202", 1–24w* See in Kolreuter whether vars. with a species give very similar Hybrids – *19a "Specifische"* (a) *19–20u↔, 23u "Stramonium | Tatula"/22–25m/w* (a) different species because hybrids different *⇑13u "ganz | Bastarde", ⇑11–9u♠/w* These with N. glutinosa give quite similar product & therefore considers them vars. *⇑9a "asiatica"* not in Loudon *⇑9/w* and these vars. of rustica *wb* (a) (On Datura see my Abstract of Kolreuter p.8/Bis) I see no reason why varieties shd not equally show this

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distinctness in same way. Does not Ancon sheep impress offspring very remarkably?? **274** *11–15w* External conditions no special influence on character of Hybrids. **275** *4–8w* Hybrid Dianthus more stabile than other genera– *12u♠/w* ♣ Mongrels follow different laws to Hybrids *13–16w* Digitalis peculiar in its sporting, & exceptional. ⇑*17–15m/w* G ⇑*8w* In embryo plant no alteration in Hybrid from Mother ⇑*7–6m/w* embryo of mother *wb* G Thinks the by far greater number of normal to abnormal Hybrid types opposed to their resulting from external circumstances. **276** *wt* In Hybrids, form of the cotyledons affected **277** *12–19m/w* differ *20wτ, wb/↕w* I think children of pure parents, thus go after either one or other or intermediate but as he says for Hybrids how ♣ difficult to judge & compare **279** ⇑*17–10w* Exactly intermediate in number of segments of Pistil, & in sterility of stamens ⇑*7a "ruber"* of same parents **280** *wt* In the cross Lychnis quite prevails over Silene, so that Hybrid is like var. of the Lychnis *2–4m, 7m* **281** *table.w* Really intermediate Hybrids Kölreuter thought they too many intermediate ⇑*9–4m/w* most difficult to settle whether plant most like Father or Mother **282** *2–5m/wt* commonest in close species *19w* When one part more resembles (but is never identical with) Father, another the Mother; this part this, that part that &c– **283** *9–15w* This gemengte character constant in those species, where it occurs. ⇑*16–1m* **284** *3w* sterile *14o, 18w* sterile *20–21u↔, 22o, 24o, 27o, 30o* **285** *13–14w* Puts strongly how these 3 classes blend into each other.. *14w* When a hybrid most strongly resembles either parent ⇑*1u "decidirt | mütterlich", wb* These terms used when the two have been crossed not reciprocally – Relativ-vaterlich &c used, when they do cross reciprocally & takes after the father in cross specified.– **286** *10–15m/w* No relation in closer resemblance to Father or Mother to fertility of Hybrid *15–17m/15–23w* reciprocal crosses take place though ♣ the offspring take decidedly after one parent. *20a "syphilitica"* Decided types generally sterile, but not always as in Lobelia ⇑*4w* strongest example ⇑*3–1m/wb* ♣ These Hybrids, ♣ are a cross of Hybrid ♣ & a third species – ◆ How is it called when two Hybrids cross? **287** *6m/w* strongest case **288** *5–9w* some exceptional types ♣ come into this class. **289** *wt* Perhaps gemengte (or 2d class) the commonest p.282.– *4m/w* (a) ⇑*7w* (a) *wb* (a) So there are species of genus which a prepotent fertility ♣ power on other species; so others have predominating influence on structure of Hybrids; but these two are not connected **290** *5u "Gattungstypen", 4–10m/4–25w* These kinds specially influence structure of Hybrids of other species, as → These are generally very distinct species.– Even these are sometimes overborne by other species; or rather there is a series of these gattungstypes **291** *1–2m/wt* Even in the mixed types, one part now resembles one parent, now another part the other parent.– **292** *wt* No relation between facility with which A will impregnate B or be ♣ impregnated by it, in different cases, & the resemblance of hybrid to the parent.– *10–17m/10w* (a) ⇑*2–1m/wb* This seems a Lamarkian **293** *1wτ,* ⇑*10m* **295** *wt* (a) Always something new in appearance of Hybrids; but not absolutely new, but appear so from odd unions & opposition of parent forms *1–3m/w* (a) *7–9m/w* (a) *17u "Mirabilis"/w* cases of in *17–20w* N.B Both sporting genera **296** ⇑*18–11m/w* Day sleep of Lychnis blended ♣ & modified **297** *15–20w* power of reproduction by shoots &c Much exceeds that of pure parent **298** ⇑*8u "Morton"/*⇑*8–3w* Dogs vary from 10–6 nipples; thinks owing to crosses **301** ⇑*17–12w* Colour variable often, in crosses & unexpected **302** *13–20w* Variations in colour in Hybrids **303** *13–18m/w* flowers do not take after Mother or Father in colour.– ⇑*2u±/*⇑*4–1w/wb* Some simple Hybrids retain in successive generations their colour as in Dianthus &c. But generally (next Page) case very different; colour most variable **304** *wt* variation said to keep true.– Vinca rosea a store Plant. Syringa Lilacs p743. The Book quoted probably cd not be consulted *2–5m/→/3–4u "Vinca | coerulea", 8–14m/w* very variable colours in successive generations of Hybrids *19–24w* complex Hybrids even more variable in colour. ⇑*10u "zusammengesetzten"/*⇑*10–4w* These hybrids take almost always colour of father. **305** *wt* Sports *1–5u±, 3–7m, 8u "drei | verschiedenen",* ⇑*14u♠/w* Sport **306** ⇑*10m,* ⇑*9–7m/w* (a) *wb* White flowers commoner here than more South.– **307** *wt* ☞ Important on account of ♣ Kolreuter Verbascum Lychnite with white flowers rarely with yellow on sandy Places – (So Kolreuter case goes for nothing) *1–4m/w* (a) *8–12m/w* seed from yellow gave chiefly white *14–20m/w* when crossed colours did not mix, but came pure yellow or white *6–20w* See 3d Fortset. p.35 **308** ⇑*13–12u "gelbe | Blume"/w* vars. **309** ⇑*10–6m/↕w* In Henslows List considered as varieties: I am nearly sure has been experimented on. Watson in Cybele seems to consider them distinct: says perhaps or probably 2 species both varying. Refer to experiments of Magazine of Nat Hist V. p.493. & VIII.634 & Phytologist 2.164 *⇑6m/⇑10–6w* Ask Babington.– **310** *⇑12–8m/w* colours changing during summer **312** *⇑15w¢* **313** *10–12w* Blue & Yellow seldom unite *19–22w* curious ways colours unite. **323** *wt* (a) In Mongrel Maize self-impregnated seeds of two colours *6u "selbst"/4–8m/w* (a) **324** *4–17w* in 2d generation of Hybrid Maize seeds variously coloured **325** *⇑8–4m, wb* It is decided that seeds of Zea not affected immediately as in Pisum. Yet Next Page **326** *15–17m/16u "wie | Pisum", ⇑7–2m/w* The Peas in second or hybrid generation varied in colour independently of immediate action of Pollen.– **329** *⇑8–7m/w* (a) *wb* (a) Hybrids are affected especially in Male organs, with exceptions **332** *5–11w* anthers & pollen in appearance sometimes good yet hybrid quite sterile **333** *⇑9u "Liliaceen"/w* often mentioned *⇑9–5m/⇑8u "und | Gewächsen", ⇑9–1m, wb/⇑9–1w* In these plants. pollen, though in appearance good yet no impregnation follows ♦ (may be faculty of female organs) C.D] pollen though swells, does not burst, in water, yet admits it may be owing to female organs, or structure of roots **334** *10–18m/1–18w* But in cases, where plant can be impregnated by other individuals or species, we can infer pollen is bad. *12a "candidum"* p745 Duvernoy *18m, ⇑12–8m/w* In most fruitful hybrids, pollen is unequally developed.– **336** *6–9w* The contents of pollen grains commonly fails. *⇑6–2w* seldom give out contents when placed in water **339** *wt* (a) In this hybrid M. Jalapa–longiflora, own pollen more powerful than own concepcion power.– *2–7m/w* (a) **340** *18–21m/w* in Hybrid Birds no spermatozoa *⇑6–1w* thinks in animals as in plants, male organs more deficient than female. **344** *13–17m/w* even in most fruitful hybrids normal number of seeds never produced & always mingled with bad ones. *⇑14–11m/w* compares this fact to result of Hybrid fructifications. **346** *7–10w* Kolreuter failed in this Reversed experiment **347** *⇑14m* **348** *19m* **350** *⇑7–5m/u "dass | vermögen"* **353** *8–12m/w* Power of fructification in Hybrids always weakened *17–22m, wb* Speaks of bisexuality as quite exceptional in vegetable Kingdom– **355** *wt* (a) insists male organs more & earlier affected in Hybrids than female *10–15m/w* (a) **356** *17u♠/15–19w* case of pure species with female organs impotent while male perfect *22u♠/w* so Passiflora *⇑9u "freien | erzogenen"/⇑8u♠/w* so this *⇑2–1m/wb*

On other side pollen fails, yet female organ quite perfect & potent; in some Dianthus, this happened only with individuals plants.– **357** *↕m/w* The wonderful cases, where in Lobelia, Verbascum & Zephyranthus, pollen wd not impregnate own stigma, but wd impregnate other species; these ♣ stigmas being also impregnated by pollen of other species *⇑8/⇑7w¢* **358** *wt* (a) The foregoing cases seem chiefly in plants brought from a warmer climate.– *1–4m/w* (a) *5–9m/w* Such anomalies much plainer in Hybrids *14u↔/w* Hybrids 3 forms of sterility *17–18w* cases of I. **359** *1u♠/1–5w* case in single individual of the Hybrid *⇑20–1w* Gaertner has great advantage that the sexual organs certainly are weakened, as producing so few seeds *⇑7–3m/w* (B) *⇑2u, ⇑1u/wτ, wb* (B) Puts this under category, that male less potent than female in each case; but surely Herberts is more true, viz advantage of crossing. – See to Herbert.– **360** *wt* (B) In this III. pollen of Hybrid wd not act on self, but in both parents; & pollen of latter impregnated Hybrid. accounts for this (not as I shd by advantage of crossing, & which I still think must hold in Herbert's case) but by believing (& it is probable) that both male & female organs weakened & cd not act on each other but only pure parents, or even the Nicotiana on a 3d species. *4u/w* (B) *5–8w* Is there any parallel III case in pure species? *10–25w* These (I, II. & III) cases in Hybrids wonderful parallels to what happens in joining pure species!!! **361** *wt* (a) Reurges male organs fail first & most in Hybrids *1–4m/w* (a) *17–20m/w* says above ♣ analogous with animals *21m, ⇑13–10m/w* (B) *⇑8–2m, wb* (B) In Dioecious plants not hybrids, in females, male organs sometimes imperfectly developed, yet can fertilise; but in male rudiment of pistil never acquires power of conception. **362** *1–25w/wt* In L. Vespertina, in female flower, the rudiments of stamen much smaller than in L. diurna, & consequently only in latter are anthers sometimes found. Does not this well show that a rudiment has something essential & real in it – Very Good We can prove Mammae in Male to be a reality.– Wings in insects & Here we can prove in another way. Gaertner somewhat suggests in Carrot to cut off the fertile flower early & see whether other flowers wd become fertile. At p345 & p.330 long description of crosses of Dioecious plants study it all.– *⇑14w* (z) *⇑11–5w* Similar changes take place easier in Monooecious than in Dioecious **363** *15xx,*

⇑*12–8w* In doubling male organs always change first *wb* Reasons why male organs more affected than female; seasons quite worthless.– May it not have some relation to Falconers Law of external parts first affected **364** *wt* accounts for hybrid breeding easier with parents than with self by own pollen having less strength; so in cases as below (zz) *1–6m/→*, ⇑*8*/⇑*7u♠/m/w* (zz) ⇑*5a "333"* 357 ⇑*5u♠*, ⇑*5–1m*, *wb* I cannot see how his explanation holds good, for the pollen of L. fulgens (s.64) did impregnate two other pure species. **365** *wt* (a) says much experience has shown him that hybrids, after 8–10 generations, have their procreative powers weaker & weaker; & hence cannot be prolonged.– (But then all crossing avoided) *4m, 8–13m/13u "wie | hat"/!/10w* (a) **366** *2w* quite sterile *11–15w* Some individuals of these Hybrids quite sterile. ⇑*16–1w/wb* Degree of fertility in most Hybrids, except the quite sterile, generally very variable, even in Hybrids from same capsule & reared alike (This shows how innate, & is opposed ⟨*written over "compared"*⟩ to its being a character of species, as species.) – (P) Hence different accounts by different authors, as follows,– **367** *wt* A) This unfixedness of fertility of Hybrids, their special character, & not observed in pure species.– *5–6m/w* A *13–23m/13w* (B) *wb* (B) Some Hybrids, produce only seed at end, or middle, or (generally) beginning of their flowering, & are at other times sterile.– This a peculiarity, confined (when so pronounced) to Hybrids.– **368** ⇑*10–7[]/w* Does not believe **369** *wt* Cases in pure Dioecious plants of changes in sexual relations *1–3m/w* (a) *7–12m/w* Female sterility of D. Japonica transmitted to offspring in Hybrids. ⇑*7–3m*, *wb* Hybrid Plants which produce an extraordinary number of flowers & are quite sterile; caused by sterility p.372 **370** *wt* Same thing sometimes occurs in pure species *1–6m* **373** *wt* ??In Hybrids crossed with either parent, & thus assuming fertility & the ancestral form, yet fertility variable in such individuals; in the successive generations.– *2u "eigenen", 5–8m/w* (a) **377** *wt* (a) seems to attribute sterility of Liliaceous Plants to state of roots.– *13u "der | Liliaceen"/w* (a) ⇑*5–1m/w* all sterile Cape of Good Hope Oxales **378** *wt* My point that plants often sterile & yet not unhealthy not touched on.– G. gives only obvious cases of infertility. *12–15m/w* Hybrids in pots more fertile than in open ground. *20–22m/w* In fruitful years more birth from domestic animals *24m*, ⇑*4–3m*, *wb* More often cause of infertility on male than female side; as in Caryophyllea & Verbascum **379** *12–16m/w* cases when pollen good but female organ *17u "manchen | unseren", 20–30w* often in exotics, pollen & female organs are ready at different times, & so can be impregnated artificially X ⇑*10–7m/w* insects less important than wind!! ⇑*4–1m/w* Infertility through long cultivation by layers &c *wb* * Would he say that C. Sprengel's facts were due to climatic influences? **380** *1wx, 2–5w* Reported by Reichenbach *10–30w* case of wild Verbascums & in pots, with certain flowers sterile & certain fertile; cannot explain. like Kolreuters cases **381** ⇑*13–10w* Female mules in warm country breed. ⇑*7u "erwähnt | Crax"/ 7–5m*, ⇑*4–2w* Black swan with white **382** *6u "männlichen"/w* Male Hybrid pheasant sterile *15–19m/w* Morton thinks relation between capacity of Hybridising & domestication ⇑*5u "Fruchtbarkeit"/w* (a) *wb* (a) Fertility a fixed attribute of pure species (in natural conditions C.D) Mem. cases of moss not breeding, (these are probably Dioecious) in Hybrids a varying attribute. **383** *3wx, 7u♠/w* fertile according to Kolreuter **384** *12–14u↔, 15–19m/16u "immer", 16–18m/w* In pure species artificial impregnation has not always yielded full number of seed ⇑*7–5m/x*/⇑*10–5w* I do not think G had GreenHouse he always speaks of ZimmerO *wb* Hybrids always less seeds than pure parents, as in following examples.– **385** *wt* See in Beitrage p398 Lychnis vespertina – diurna gave with own pollen 234 seed. *1–4m/w* see to Kolreuter about Datura *3u "200–280", 4u "600–800", 7u "192"/8u "210 | Samen"/7–8m/w* differences between natural & artificial impregnation ⇑*6–2m/w* (B) *wb* (B) Great differences in different individuals of same hybrids & in different years, in fertility striking.– **386** *2m*, ⇑*12u↔*/⇑*14–12m/w* Genera with most fruitful Hybrids **387** *1u♠/wt* Henschel says this fertile, but reverse quite sterile. See Henslow. *13–20w* No relation between fertility of pure parent & the facility of uniting, or with these Hybrids having fertility ⇑*12*/⇑*9wx* **388** *1wx, 5–8m/w* Hybrids nearly as fertile, but never quite as pure parents.– *table.w* The reverses of these not equally fertile. *"Lobelia".w* (K) in Table *"Matthiola".w* This not in list → as repeated at p.402 → The table is probably wrong *"Verbascum".w* Some great mistake Not in List!!! *wb* in little degree fertile, which is commonest case **389** *table."Verbascum".→ to previous table, 8u "Absolut unfruchtbare"* **390** *table.w/1–5m/w*

The above numbers show that in Hybrids greater inclination for sterility than for fertility. *⇑9–7m/14–3w* Fertility so variable at different times, & in different individuals, that simple classes of fertile & infertile Hybrids will not do. **391** *wt* (B) Here are 4 cases, in which other authors find fertility whereas Gaertner finds great sterility: was he bad Gardener? *5–10m/w* various striking cases of difference fertility, as found by different authors. *8u "unseren", 8w* (1) *9u "total steril", 11u "bei uns"/w* (2) *13u "bei | total", 14–19m/w* one year so fertile as to self sow, in next year very sterile. *⇑14u "immer total"/w* (4) (B) *⇑6–3m/P, wb* (P) cases of Hybrids out of same capsule, of different degrees of fertility & some quite sterile.– **392** *7–15w* In the greater number of Hybrids sterility belongs more to the individual than to the kind; (ie some are or may be fertile) *⇑14–3w* in same category stands fact (χ) that Spring or first flower of Hybrids only bring seed generally. **393** *5u "ersten Früchte" 7u "40 Samen", 8u "2–3"/w* Examples of above laws χ *⇑11–6m/w* In pure species the difference in no. of seeds in early & late flowers inconsiderable *⇑9u/wτ* **394** *7m, 8–14w* Variability of Fertility cannot be accounted for by luxuriance *17–20w* In pure species, when periodically infertile not very luxuriant *⇑4–3m/wb* Fertility does not stand in inverse relation to their Luxuriance **395** *9–14w* Herberts' case of fertility after 16 years might be due to pollen of pure parent. *⇑6–1w* No art or ♣ culture will alter or improve the organs of generation in Hybrids. **396** *10wτ, 16z, ⇑9–7w* Fertility does not go by genera *⇑5u♠, ⇑4u±, ⇑4–1m* **397** *⇑8–1w* The inequality of fertility in hybrids from same generation, shows that fertility cannot depend on outwards circumstances **398** *2–4m/1–8w* Hybrids in pots easier bear seed than in open land, because too much luxuriance thus checked *11–16w* tried experiment to see effect of different culture &c & cd perceive none.– **399** *wt* ☞ || Certainly a priori, one wd have expected a gradation in fertility of hybrids & old mongrels as Dogs In Gaertner Tables there is app◗ to this. *4m, ⇑11wτ* **400** *3–13w* Contradicts Wiegman that maternal or paternal types fertile individuals sterile. *⇑13–1w* Chief conclusions (1) Unfixity of fertility in same hybrid The varying form of the ♣ Hybrid is the abstract which can be divided into following classes. **402** *⇑2/⇑1m* **403** *4–6m* **404** *⇑2–1u↔* **405** *wt* (a) Hence resemblance of Hybrids to either parent no marked influence on fertility.– *1u♠/w* male *5–7m/w*

(a) *⇑20–12m, ⇑20w* (B) *⇑10–3m, ⇑10w* Examples *⇑7u "256", ⇑5u "diesen | Bastarde", ⇑4u "absolut unfruchtbar", ⇑3w* Examples *⇑2–1m/⇑1u "49", wb* (B) These authors think law of relation between fertility of Hybrids & the affinity of parents; but if we judge of latter by seeds yielded, there is no relation to fertility of Hybrids when reared from them **406** *9–10m, 9–11m/8–13w* We conclude that fertility of hybrids stands in no near relation to ♣ elective affinity of parents.– *25x/16–19w* Yet strong exceptions on next page *20–30w* When plants cross easily both ways, hybrids most commonly fertile. This fertility seems to depend on resemblance in Hybrids of parents, but with exceptions **407** *wt* (a) In Hybrids from reversed crosses, even when quite like each other, Yet fertility not same, & in one case even on one side quite sterile. X ☞ Important as shows not in essence of Hybrids.– *2–12m/10u↔/w* Yes for see p.385 *13–16m/w* Ease *⟨he probably means Case⟩* when reverse cross easy, yet Hybrid sterile *⇑6–2m/w* (B) *wb* (B) From ♣ facility of union cannot infer fertility of product **408** *9–10u/8–13w* It seems that systematic affinity of Parents favours the fertility of Hybrids see p.410. *⇑7–5m/w* Above law it seems has been discussed *table.w* see p.414 Hybrids from these have remarkable fertility & were considered by Kolreuter as varieties. *wb* When we consider these facts we might conclude that fertility of Hybrids indirect relation to affinity of parents **409** *1–20w* But on other side (→ this other side seems most strong) many close species will not unite, & (2d) that some species will unite & produce more fertile hybrids than more closely allied species. examples. *18–20m, ⇑13–12m* **410** *1u "Herbert", 5–7w* Examples as before *12][, table.w* Examples of nearly related species having hybrids quite sterile *⇑8–4w* Most unlike dogs breed & produce fertile offspring. *⇑1m/wb* concludes that likeness in Habitus cannot be ground cause of fertility or sterility of Hybrids. **411** *12u "constitutionellen"/w* considers this an unknown element *⇑8–5m, wb* Repeats that as fertility varies in Hybrid from same parents, it belongs to the individual & not to the Kind **412** *wt* Even in quite sterile plants in both sexes, yet flowers remain longer when stigma dusted with pollen of either pure parent so in truth not utterly ste.rile *2–7m, 8–11m, ⇑8–1m/w* argues against the several explanations of Herbert of special cases of sterility **413** *14–18w* not on account of evergreen & deciduous leaves. **414** *13u, table.w* considered varieties by Kolreuter from fertility *"Datura", "Malva".w* ia *(others).w* o o means not tried by Gaertner *"Dianthus".w* XX *2nd table.w* o not tried These 2 are added, though Kolreuter cannot dare to call only vars. ⇑*4u "parum vel", wb* XX. V. My M.S. p.19 on Kolreuter, showing that all Botanists agree in thinking these only vars. **415** *table.w/wt* ia But as several of these are probably rare it is very important that G. says not so fertile as pure parents, for we get then a series *table.w* also highly fertile Hybrids *"Matthiola".w* Bentham says var. *3–5m/w* but yet not so fertile, in any of above cases, as pure parents. *3u "allen diesen"/3–10w* Yet he has not tried all Koelreuters must mean these last alone *4u "ausgezeichneten", 5–6u "niemals | hervorbringen"* **417** *wt* (a) Agrees with Herberts constitutional doctrine (which I think means only some internal difference. *3–8m/w* (a) **418** ⇑*12–8m/w* (a) *5–2m, wb* (a) The most fertile hybrids always lose fertility in successive generations.– some sterilish plants if artificially fertilised increase in fertility **420** *12–25w* In 2d & other generations of Hybrids, fertility becomes unstable & often less, so that even parent-pollen will then have little or no effect. This sterility, however, varies much in different individuals & depends especially on the individuals *13–18m,* ⇑*9–6m/w* A ⇑*5–2m/w* Fertility never greater in 2 generation, than in first. ⇑*1wτ, wb* (A) In Mongrels, fertility even greater in second generation, than in first. see further on; for this perhaps implies less fertility in crossing varieties.– **421** *wt* (B) This decrease of fertility in second generation has been observed in less fertile hybrids of Nicotiana, & fertile Dianthus hybrids, as in example given. As this is only second generation cannot be due to want of crossing.– *1–4m/w* B *8–9m/w* So in animals according to Morton *15–25w* sometimes fertility increased after repeated artificial impregnation in succeeding generation, but this plant has commonly gone back to either father or mother type *20wτ, 25–27m/w* D *wb* (D) Many very fertile hybrids propagate themselves, with unaltered type like pure species, as in list, but always with decreasing fertility. **422** *3–4m, 5–10m/w* In 2d & succeeding generation hybrids sport much ♣ ⇑*6–1m, wb* some remain like hybrid others go back to either grandmother or grandfather **423** *wt* (a) The ♣ manner in which type divides, & goes back, varies much.– *2–8m/w* (a) *13u♠/w* offspring of this varied more than from reverse *15u♠/w* greatly & ⇑*15–9m/w* Kolreuter compares these with hybrids crossed with pure parents. **424** *15–21m/w* The exceptional or abnormal hybrids, when fertile, generally produce normal hybrids. ⇑*8m* **425** *12u♠/12–16m/w* with own pollen 4 seeds with pollen of D. barbatus 10. seeds.– *16u "29 gute"/17u "67 hervor"/16–17m/16–23w* so again, & thus often.– & likewise so with very fertile hybrids.– ⇑*8–3w* & so with quite sterile hybrids, corolla remains longer when dusted with either parent pollen.– **426** *11–14w* examples as last page ⇑*12–1w/wb* when parent & hybrid pollen mixed, latter rendered quite ineffectual, so that no need to castrate; just like when foreign & own pollen applied to a plant, own eliminates quite effect of the foreign.– This Curious. **427** *wt* (A) Pollen of a third kind will sometimes produce more effect, than own hybrid pollen. *1–2w* (A) *3u♠, 5u♠/3–6w* 13 seeds with own pollen; langsdorfii 16 seeds. *18wτ* **428** *15–19m/13–30w* The pollen of the two parents has no regard to their sexes in the effect they produce, but that pollen, which has most power of metamorphosis or umwandelung, which will be discussed afterwards, I suppose that pollen which soonest converts hybrid into pure species, produces also most seeds in Hybrid. ⇑*18–7m/*⇑*13w* A *wb* (A) Niger again variability of offspring of self-impregnated hybrids.= so mongrels are.– **429** *1/2/4wτ, 12u "aufsteigenden", 16wτ, 17–18u "väterliche Bastarde"/w* Paternal Hybrids – are offspring of pollen of ♣ same species twice ⇑*6u "2"/wb* If this ♣ hybrid had been crossed with pollen of atro-purpura, it wd have been a "Muterliche Bastard" or "absteigenden" grade p.451 **430** *1–8w* by Father pollen more seed generally then by Hybrids own pollen, but generally not so many as in first cross of pure parents *14u "einfache", 15–17m/w* much unfixedness in this class of Hybrids *17m, 18–30w* Like second generation of simple hybrids, these Paternal Hybrids vary much & differ much in fertility, out of same capsule. So very different results from repeated experiments with same species. **431** *1–3m/1–10w* The more fruitful hybrids vary less, & go back more to paternal type, but have often reduced fertility, as, – examples *9wτ,* ⇑*17–7w* When they take less after paternal type & are much less fruitful, so vary much.– generally under 3 types, in accordance with resemblance to ancestors & parent.– ⇑*10u "schwächeren"/?* **432** *wt* Different species have different tendency to communicate their variability; old cultivated plants *9–11m/w* (a)

⇑14–1m, wb In these cases the ♣ type which normally approaches to father or double pollen side is less fertile **433** *wt* I am not quite sure that these two pages are fully understood *8–13m/w* Here the type which came nearest father was most fertile. *17wτ, 18–25w* all sorts of variability in type & fertility *⇑2u* **434** *2m, 16–20m/w* It is clear that fertility does not always at all increase ♣ in resemblance in succeeding generations, with †⊸⊸✗ ancestor *⇑12u "fünf"/⇑16–12w* 5 different types out of this "paternal" hybrid *⇑10–8m/w* Here case of coming near the paternal type with considerable fertility **435** *wt* A Commonest rule or appearance in this stage of conversion is that the more the hybrids differ from mother & approach the paternal type, the more they suffer in fertility.– Thinks the reverse more probably really the law. *12–16m/w* A *18wτ, ⇑12–6w* Female organs recover first their powers.– *⇑4–1m, ⇑1u♠/wb* Fertility in this in such as → always very variable **436** *4–8w* Examples of above variability in fertility *10–30w* These "paternal" hybrids are when self impregnated, generally more fertile, than in former generation, & of themselves tend to approach the paternal type; ie even when self impregnated & are variable in structure. *⇑10–9u "in I Generation", ⇑10–3m/⇑8w* B *wb* B This particular hybrid came by itself more fertile, which he seems to consider normal result of repeated impregnations of own pollen **437** *wt* Think the above like avatismus in Animals *1–4m, 8–9u "in I Generation", 8–12w* when go back to Mother, not quite & unequally. *16wτ, ⇑10wτ, ⇑9u "Puvis" "Van Mons"/⇑9–4w* So these authors wrongly dispute tendency to avatism **438** *8–12w* Thinks all variation from cultivation when free tend to go back. *19/20wτ, 19–22w* tends more to mother than Father *⇑10–4m/⇑9w* (A) *⇑3wτ, wb* Happens oftener with same genera than with others; never in the very fruitful Hybrids– **439** *6u "Lavatera I Generation", 7–10w* This first time more to mother in another case more to Father. *14–20w* In these going back progenyO of Hybrids, fertility less, sometimes gone, never increased. *⇑13/⇑8wτ* **440** *10wτ, ⇑16–4m, ⇑9wτ, wb* I believe he here argues that going back of Hybrid offspring, & of varieties not crossed, is evidence of aboriginal foundation form of species. ☞ So it is some evidence – V. p.455 my Note. Good. **441** *wt* Thinks the former Laburnum case a proof of sterility of species & tendency to go back. *1–3m, 9/10wτ, ⇑13–3w* The occasional approach to father in simple Hybrids or in second generation of Paternal Hybrids, is rarer than the approach to the mother. **442** *8–13w* amongst simple Hybrids Those that approach Father are more sterile. *19u/19–20m/w* These are apt to tend to Father *⇑12–1w* The Paternal Hybrids in 2d degree which go back to father have increased fertility. These cases liable to error. **443** *6wτ, 6–9w* All the above facts like avatismus in animals. **444** *1wτ, ⇑3–1m/⇑2u "weiteren Generationen", wb* in very fertile hybrids these goings back to mother or father have not been perceived, so prevented apparently by strength of sexual organs. **445** *wt* (A) These goings back agree with the Abnormal types, except these latter are the result of the crossing of pure parents: they also are very sterile. *1–3m/w* Law of variation *6–7m/w* A *17–20w* In successive generations more variability *⇑13u♠/⇑13–11w* These sorts of Hybrids give most variation. *⇑8w* D. barbatocarthusia,– carthusium. *⇑7u "väterliche Bastarde", ⇑7–3w* variation seldom then in last case (♣ next Page on do) *⇑2u "paniculatorustico-glutinosa"/ wb* These hybrids always with one exception approach father (or 2d species) & commonly totally sterile Yet I think they were sometimes more fertile than with own pollen.– **446** *4m, 6–10w* Male more power in causing variation than female. *⇑14–6w* Cause of variability lies in act of generation perhaps aided by circumstances **447** *⇑16u♠/ ⇑16–12w* not to be distinguished from pure N. rustica, but less sterile *⇑8u♠/⇑8–6w* & even in this generation less fertile *z/wb* Mother Father♦ pure ♣ paniculata Grand Father♦ Mother Gt Gr. Mother (3) Grt Grt grandFather (4) was paniculata **448** *1–8w* Different species are changed at very different rates with the paternal type, but this varies in same species **449** *3wτ, 8–10m/3–10w* colour of flower does not vary more in later generation than in first, which is different from other variability *⇑15w* A *⇑7u♠/ ⇑7–1w* Even some of these quite sterile in both sexes *wb* A In some case, especially such as are slow to be converted, the fertility is lessened, especially on male side, even when hybrid has gone back nearly to paternal type. **450** *wt* A Such Hybrids with own pollen improve fertility & of themselves go nearer the paternal type. *1m, 1–12w* Even some fruitful paternal hybrids in 3d degree were quite sterile on male side. Generally with higher degree of Paternal hybridism, so much more fertile. *14u♠/w* A *⇑13wτ, ⇑12u♠, wb* In each paternal degree this became

more sterile on female side, because it approached D. Japonica which is naturally sterile on female side. **451** *⇑10wτ* **452** *1–4w* More fertile than corresponding paternal Hybrid *9–12w* varies more ♣ than paternal hybrid x→ chinensis-barbatus female barbatus male *table.w* These bore 6–15 varieties *⇑10–1w* Most of the vars have approached very close to pure maternal type **453** *wt* xxx I shd think caused by female side of Hybrid being most fertile & other side being crossed with same type, through a male, caused their greater fertility. & is partly proof of more fertility on female side. *8m, 10–14w* More fertile than corresponding Paternal Hybrids xxx *17–28w* But even here amongst those most closely resembling Maternal type, quite sterile individuals are found. Here also male side fails in fertility more than female. *⇑12–9m/w* A *wb* A In further generations, when self impregnated, become of themselves more like mother & more fertile & less variable– **454** *10–20w* The more fruitful stick to the hybrid type longer than the less fruitful. Rate of going back varies according to Kind **455** *wt/1–5w* A Neither var. shd be an aboriginal form. This makes me believe the reported fact that Mongrels go back: Bell insisted on this to me one day, in regard to Pigeons, & I think Dixon did. ☞ So Gaertners remark that this proof of Real Species fails, for applicable to Varieties *1–15w* → But it might be said that one var. was an ursprungliche forme.– *8u "zur Stammmutter", 7–18w* The law that these (I fancy both paternal & maternal, anyhow the latter) of themselves, self-impregnated go back to type of Mother, most important. (A) *22–23w* The metamorphosis of one species into another like a variety into another seems opposed to species being something distinct as Entity.– XX *⇑6–5w* In Tollets case of Malay Fowls so long affecting breed is case of a var. with stronger tendency than others to go back, like species *wb* XX It is argued that the sterility of hybrids, shows that species are a distinct entity, then surely the points in which they agree, may be fairly adduced to show that they are not essentially different **457** *10wτ* **458** *⇑7–4m/w* (a) *wb* (a) The rate of metamorphosis depends chiefly on the species employed; but also in less degree on the variety (This rate has narrow limit) of the individuals employed; on account of different degree which they go back in type **459** *13–16w* The shorter the period of Metamorphosis the less variable *16m, 19wτ, ⇑14–12m/⇑16–5w* In

reverse cases, the metamorphosis at different rates, even though the hybrids from the reverse ♣ be alike. Thinks this proof of aboriginal creation. *⇑2–1m/w* A *wb* A Always approach to type of ancestral form before organs of generation quite perfected; ie these are last restored. **460** *wt* It is not likely we shd understand the slow restoration of the generative organs, as long as we remain so ignorant regarding the esesential action of these organs; & why two sexes necessary.– *8–10m/6–16w* Not seldom quite like pure parents & yet even quite sterile, specially male organs; sexual organs universally ♣ in some degree affected *11–12u "allen | Ausnahme", ⇑16–12m/w* Law, that male organs not only more easily affected but slower restored. *⇑7–1m/w* do not understand. **461** *↕w* extreme variability of fertility during the umwandelung, not connected with any law.– Never suddenly appears by a jump. Yet one almost exception by Kolreuter, with unusual approach to pure type, and Gaertner one other case with relatively little approach to pure parent. These cases show that the gain of fertility ♣ is due to peculiarities of the individual *17–22u±* **463** *wt* (A) As in first generation, decided types (Given in last page & p285) arise close to one parent, so it is evident the number of generations required for metamorphosis must vary much. *6–12m/8w* A *table.w* on average **464** *⇑13–7w* As far as yet known never requires more than 6 or 7 generations *⇑10/7wτ, 6m* **465** *wt* A Attributes the variability not entirely to the difference of the going back of individuals, but also to variability due to long cultivation, for has not perceived it in the wild-growing, nor in the more fruitful hybrids.– *11–19m/12w* (A) *⇑14u "oben | 220", ⇑13z, ⇑13–1w* In reversed crosses, even when hybrids are alike yet they are not metamorphosed with equal readiness, which shows some difference in their nature → *⇑2–1u↔/w* example *wb*♦ Thus Dianthus **466** *wt* Hybrids may be considered as a united brother & sister *17wτ* **467** *wt/1–10w* Would not "Reduction" good be term for Umwandelung = inversion in Dict. → Absorption by Father form *wt* Reduction by the Father or of mother or by paternal pollen or maternal pollen *7–10m/7–17w* (B) Fertility of hybrids stands in no special relation to capacity for metamorphosis: Examples,– very sterile & yet in 3 power almost reduced to D. car. *13u♠, 16u "dritten Grade", 20–24m/w* fertile but require 5 powers &c &c *⇑2m, ⇑1w* other reasons for (B). **468** *⇑8–5m/w* A *wb* (A) Generally with less ♣ "sexual affinity" of first pure parents the Reduction ♣ slower, & the reverse with ♣ more fertility **469** *8–10w* Exceptions to ♣ last rule *⇑15–12w* Examples of above rule **470** *wt* Foregoing examples show no fixed relation between periods of Metamorphosis & sexual affinity of Plants.– *1–2m/w* A *8u "der|Typus"/6–15w* A species with this power of producing a decided type will reduce a species in the reverse manner *⇑13–10m/w* There is also relation to systematic affinity of species. *wb* Systematic affinity must mean "likeness of characters externally visible. **471** *⇑14–6m/w* Examples of last Rule *⇑3–1w* Exceptions to **472** *wt* (Q) The different powers of reduction in hybrids from reversed crosses, show no fixed relation to "systematic affinity of parents *9–13m/w* Q **473** *wt* (B) Returns to parent-forms through self-impregnation are very slow, & require many generations. *11–15m/w* (B) *23m* **474** *6–10m/w* The goings back seldom observed in wild plants when experimented on *12a "428"* 438? *13–20w* Conclusions (1) Facility of Reduction not absolutely depends on sexual or systematic affinity.– (2) Returns more often to Mother than Father. *⇑8–6w* Not all embryos affected alike. **475** *⇕w* I suppose he wd say there was a hatred in the Vegetable Kingdom to these crosses: perhaps his argument directed against those; like Herbert who believe in hybrid origin of species. *2wτ, 16–17u♠/13–18w* In reduced hybrids traces of parental character may be yet discovered. *19wτ, ⇑13–8m/⇑11–10u "unzweidentigen"/w* (a) *⇑1wτ, wb* Thinks the Reduction of species affords "unequivocal" proof that the limits of species confined & fixed. How curious. I can see force in this argument in reductions by self-impregnation.– **476** *1wτ, 1–6m/w* Excessive care in preventing parent pollen, Kept in chamber.– *⇑9–8w* The old stories of Grasses changing into each other.– *⇑4wτ* **477** *8wτ* **478** *5wτ, 4–6w* Hornsuch defender of transmutation *13wτ, 17u "Berg"* **496** *⇑7w/⇑4w/wbτ, wb* Amongst seed of Vetch, some chickpea, which produced 2 vars. like Vetch **497** *⇑7–5w* Amongst the seeds he found 4 vars. **498** *18–23w* 4 vars of Peas, very slightly different, raised out of bought seed.– **499** *8–16w* no variously coloured seeds produced & it is clear he wd like pairs to prevent crossing *⇑11a "51"* 3 correct *⇑3/⇑2wτ* **500** *⟨fn nos corrected⟩, wt* (a) Remarks that many plants when put out of proper conditions do not vary, & those that do, their union retain & power of union suffer much less *7–10m/w* a *11–16m/w* Cases of change of Form chiefly in Lecoq *16–18u±/m/w* these very fixed *⇑14wτ, ⇑10–8w* long cultivated plants as *⇑6u "Cerealien, Leguminosen"/⇑4–2u "Dianthus|Tabacum"/m/w* vary **501** *1m/wt* same cause makes them ♣ easily depart from normal Bastard-type *7–9w* varieties tend to go back; no facts given *8wτ, ⟨fn nos corrected⟩, ⇑12–6m, wb* Quotes Herbert, that domestic variations do not affect organs of generation **503** *22wτ, 23–24w* There are 6 of these classes. **504** *5–8w* Simple Hybrids of own type *2nd table.w* I cannot think why Reduced Hybrids per patrem are here omitted *wb* → (a) & (b) Hybrids alike & so also (c) or Reduced Hybrid per matrem. **505** *9m, 11m, 23m/w* (C) **506** *wt* (a) It is only the quantity of blood from either side which makes a difference. *4–17w* Thus these are alike (a) But when one factor is more powerful in its influence, then there is a difference, as. *12–17m/w* very variable & generally very sterile with exceptions. **507** *1wτ, 2m/u "aus|Faktoren", 19u "sind|steril"/15–19w* Excessively variable & generally absolutely sterile *22–23w* compounded. 3 species same as last only mother a hybrid *⇑2–1m/wb* In type always (yet a prepotent type in any species has some influence) go to Father: ♣ but in different degrees.– (So Kolreuter also says) fertility varies generally little.– **508** *4–5u "vermittelnde"/3–5w* are very distinct from class 5 *6–10m/w* In this subclass the 3 pure parents are somewhat allied *table.w* very little fertility in one folling case very considerable fertility *⇑2–1→* **509** *⇑7m, ⇑5w* (A) *wb* (A) In the second subclass, species are used which will not cross without the intermediate & 3d species, & therefore are very little allied in sexual affinity.– These always most closely resemble pure father. Excessively sterile **511** *14–19m* **512** *13–15m/w* a tendency to vary even in individual plant *17–24m/22w* (a) *wb* This extreme closeness to father very singular & against ordinary laws of Hybridism, explained by greater potency of pure pollen of Father, as likewise is shown in the 3d class, in which Mother is pure & yet it seems no leaning to either side. **513** *⇑19–11w*♦ It seems that where pollen pure & ovules hybrid, then appr to pure & less variability *⇑9–4m/m, wb* not so variable, apparently owing to the potency of effect of pure parent.– **514** *wt* A Conclusions (1) that hybrid ovule or pollen cause of variability. (2) that the pollen, even of hybrid origin has preponderating influence over female !!! I do not see how second conclusion *1–6m/w* (A) *5wτ, 6m* **515** *4wτ, table.w* Here whichever species has the most typical strength, the offspring resembles it – quite sterile *table.w* Not one is Double **516** *table.w* 4 species united *table.w* In this the several offspring resembled all four parents *table.w* Excessively variable, no two individuals alike. Fertility lost. **517** *wt* It is clear that the more complicated the unions the more variability ensues. ⇑*14–11w* Hybrids can be told from pure only by variability ⇑*6u "schon | ersten",* ⇑*5–3u "niemals | Arten"/m/w* repeated over & over again ⇑*1m*✎ **518** *2m*✎, *3m*✎, *8m*✎, *10–13u*↔, *14m*✎, *15m*✎, *16m*✎, *17–18m/w* not more subject to malconformation than pure species *18–19u*↔ **519** *wt* Some hybrids can be much more easily impregnated when growing in pots than in open land, because too much luxuriance checked.– Good instance of ease of effect of too much luxuriance *1–7m/3w* (a) ⇑*4–2w* some seeds look poorer **520** *1–10w* of these many seed fail quite or seedlings live very short time or rather longer or only just flower *16–17w* examples of above ⇑*13–4w* The above one exception to rule, & may be due to greater susceptibility of outer causes **521** ⇑*14–13u*↔*/x,* ⇑*11–10u "Sageret | aus"/*⇑*11–9m* **522** *1u*♦*, 18u "11 | Bastardarten"/m/x/1–18w*♦ Period of germination in Hybrid seeds very various **523** *13–14m/x,* ⇑*18u "Bastardsamen | Art"/*⇑*18–16m/x,* ⇑*15–13m/x/*⇑*13–12u "weil | werden",* ⇑*12–11m/w* (a) ⇑*8–5*→*, wb* The typical strength of a species over the other is shown in affecting period of germination of Hybrid seeds **524** *13–17m,* ⇑*16–15u "daher | grosse"/*⇑*16–8m* **525** ⇑*4–1m, wb* Hybrid seeds do not appear to keep so long as pure seeds **526** ⇑*4–1m/w* all observers agree about luxuriance of hybrids **527** *5w* long stems ⇑*12–8w* Easily propagated by cuttings &&c ⇑*9u "stocken sich"/wb* Even in stocks "make offsets" ⇑*7–6m,* ⇑*4u "Seitenästen"* **528** *8–9w* <u>Proliferus</u> *17–23w* Thought to be related by Kolreuter to sterility of Hybrids *21wτ,* ⇑*9–1w/wb* Opposed to this is the fact that luxuriance begins before development of sexual organs I do not think this objection **529** *3–8w* (3) all very sterile hybrids are not luxuriant *12–17w* (4) These hybrids which are most fruitful are the most luxuriant ⇑*14–10w* concludes luxuriance a peculiar quality of Hybrids. ⇑*9u/wτ* **530** *4–10w* Hybrids flower earlier with exceptions **531** *13–19w* unseasonable flowers This is odd. Is it not like double flowers? ⇑*11–4w* stamens & stigma increase in number sometimes, but not both *wb* rare exceptions to above, when very distinct species united. **532** *13–25w* Kolreuter accounts for above by sterility, but doubts as most fruitful * Hybrids, are those which produced most flowers *17u "diejenigen Bastarde", wb* * Yet these are in some degree sterile **533** ⇑*16–8w* absolutely sterile hybrids have ♣ their flower long preserved, when dusted with pollen of either parent.– **534** ⇑*15–13w* Flowers longer ⇑*2–1w* some exceptions **537** ⇑*18–5w* Because Bees freely frequent quite sterile hybrids, for Honey, thinks no close relation between dissemination of pollen & nectar. ♣ Might as well as say elytre not connected with protection of wings, because present in apterous insects ⇑*11u "Fruchtungsvermögen"* **539** ⇑*6–1m/w* Thinks Kolreuter wrong in concluding these are only vars **540** ⇑*20–15m/*⇑*20–5w* Never gives so many seeds as pure parent. As pure species are often sterile sterility cannot be taken as proof of hybridism **541** *wt* can offer no explanation of Sterility *1–6m* **542** *wt* Duration of plants whether 1 or 2 years always very variable *3–5m/5u "Koch", 7–17w* Hybrids longer lived. strong character of such plants, as below ⇑*4–3u*↔ **544** ⇑*3–1m, wb* attributes above partly to sterility, but – **545** *4–15w* objects that some quite sterile are only annuals, & objects that castrated parents have not life prolonged. *17wτ, 16–18m/w* (a) ⇑*17–12w* In crossing hermaphrodite to 2 unisexual plants sexual organs repaired. *wb* In dioecious plants organs imperfect of one sex. in Hybrids perfect, but functionless **546** *wt* Hybrids become decrepid in successive generations. *1–4m/w* (a) ⇑*15–1m/w* Hybrids can bear cold better than parents, which is connected with their tenacity of life **548** *5–10w* However Some hybrids from little related species are tender. **549** ⇑*18–17u "den | Tulpen"/w* These vary during life of individuals but then variable flowers ⇑*16–1w* In This Hybrid (perhaps only a mongrel iy) some of the flowers in middle of summer & autumn went back to Mother in flowers **550** *3–5w* other cases of above *14–17m/w* Suspect the 2 Tropaeolum only vars, yet very different. ⇑*7–5m/w* a ⇑*7a "speciosissimo"* female ⇑*7a "phyllanthus"* male *wb* (a) This hybrid for first three years had angular 5 sided stigma, & then became like Phyllanthus.– **553** *12–13u*↔*/15u*♠*/10–20w* cases of hybrids in which type has kept very constant, in this case for 10 generations, but with lessened fertility *19x*✍*, 21x*✍*,* ⇑*8–4w* above <u>only</u> examples of progeny of hybrids not varying **554** *2–18w* Fertility even more variable than other characters. Rarely becomes more fertile in 2d generation but generally, even in most fertile Hybrids, much more sterile. **556** *wt* The tendency to go back, he argues, wd prevent new species being formed by variation; but overlooks any mention of selection picking out the new form adapted to new end.– *1–5m/w* (a) → ⇑*16–8w* Local & constant varieties are different as long as new conditions are present, but change them & the species will go back **557** *wt* (a) as opposed to those who believe genera are made by crossing of species, brings case of Verbascum with species most difficult to distinguish, yet most sterile.– *1–6m/w* (a) *9–15w* Thinks monstrosities not occurring more in Hybrids than pure species, though Kolreuter did think so.– **558** *wt* Has made 1000 artificial impregnations *1–2u "an | Befruchtungen"* **559** ⇑*17–13w* cases of Dwarf Hybrids enumerated by Kolreuter **561** *11u♠/14u♠/11–16w* The doubling of calyx & colouring of do., even in these genera, not once observed. **564** *wt* Hybrids become double like pure species– Does not seem more apt to be double *1–3m/2u "Jäger"/wt* Has described double flowers in all classes. **565** *8–12m/w* rare case of double hybrid, if parents single ⇑*11–8m/w* sparing & retarded dusting with pollen, most apt to bring double flowers ⇑*5–2m/w* (a) *wb* (a) Hybrids more inclined to double than ♣ pure species **566** *10–15m/w* It wd appear that this stock was impregnated by Plants 100 yards off – **567** *7c/w∉*, ⇑*14c/w∉*, ⇑*13–7w* luxuriant growth no doubt necessary for doubling, but some other cause shown to exist ⇑*3–1m/w* near Hot Spring several Plants double **568** *1–4w* cases of wild flower double ⇑*4wτ* **569** *wt* (a) This seems to agree with male organs being most easily rendered sterile in Hybrids. *4–7m/w* female organs more often spared from changes in double flowers (a) *7m, 10–14w* The coupling of stamens in Hybrids the opposite of Doubling. ⇑*10–5m/w* Pistil more often converted into Petals in pure species than in Hybrids. **571** ⇑*13–10m/w* Monstrous Sea-hound with 2 heads **572** *7–10w* It is remarkable that vegetative strength owing to sterility does not disturb rest of flower ⇑*15–1w* The Pollen & ovules themselves must have to be modified: the variation is not due to mere mixture of two kinds of cells ⇑*3–2m/w/wb* very strange that corolla as altered ♣ stamen is not modified in Hybrids. *wb* In the second generation of Hybrids we have much variation, which is kind of monstrosity **574** *wt* xxx This remark <u>very curious</u> & bears on what I have shown The large genera var most. I do not know whether remark applied to wild or tame. If wild ♣ as I fancy all is right. If tame it wd indicate that my explanation of spreading & favourable conditions must be superseded by some new law. Could it be tested by Loudon, ascertaining the proportion of genera with single species. by Lindley??? *1–2w* Shd this rule hold for domestic plants, then we may account for it by variability being necessary to improve plant. *2–3w* As I thought of doing with Domestic animals. Wd it be good to take domestic Plants & see proportion of species to genera??? (or do it all by Loudon. that wd be best) according to Nat Family & whole Kingdom. *5–7w* Maize has one (or two <u>Molina</u>!?) species) *8–10w* Rye has only 2 species Rice only one? ⇑*12u♠/w* Hardly vary at all anywhere ⇑*10–9u♠/w* These vary vastly ⇑*10–4m/w* (B) ⇑*7–4m/w* xxx (a) ⇑*1w* aescutus Horsechesnut *1a "macrostemma"* Red Horsechesnut *wb* (a) <u>Q</u> Some have thought that single species of genera do not vary (<u>Man</u>!) much, but case of Platanus given *wb* (B) But the Platanus of Pavia have more than one species as far as I can find out **575** *wt* Admits the crossing in cultivation must check the ausartung of plants but doubts whether this holds in wild Plants!!! *1–9m, 15–18m/w* variation affects every part of Plant. ⇑*13–7w* crossing of species & varieties an evident cause of variation ⇑*4–1m/w* variability quite ♣ owing to mongreling than to external agency **576** *1–3m/w* Van Mons 2 kinds of variation *13–17m/w* some varieties are constant but crosses of where vars. very variable *18–22m/w* White Dahlias not one white seedling ⇑*3u "zum Theil"*/⇑*5–1m/w/wb* all agree that vars cross & produce partly more fertile ♣ offspring, than the pure parents.– But exceptions as on next Page **577** *3a "von"/wt* at p.87 says these two vars grown in garden always kept pure. *3–4u "Cucurbita | major", 3–8w* These unite with great difficulty, but offspring very variable & fruitful *8–10m*/Q✍, *8–10m/w* says some vars of Dogs, some crosses are more fertile than others <u>Ask</u> *14–18u♠/w* K. calls these stabile vars. (Gaertner the following; some Botanists consider as species *21u "unserer | fortpflanzen"/w* finds like Herbert the vars of Hollyock constant. *23u "Lychnis"/24u "phoenicea"/w* (A) ♣, ⇑*11–5m/w* Mongrels like offspring of simple Hybrids, only more variable, (which surely might be expected

C.D) ⇑*6–1m/w* case of variability in varieties *wb* (A) These true species in relation to variability like Mongrels, in fertility like Hybrids.– Yet Lychnis is wild & not cultivated Plant see p.582 at top **578** *wt* In Cucurbitae, on same plant often two kinds of fruit in shape & flavor *1u♠/1–4m/w* (B) *6wτ, 7–8u↔/w* Important *8w* <u>intermediate & this is commonest</u> in close species see p.283 *13u "früher"/16m/9–20w* The uninjured & often increased fertility of mongrels, accounted for by luxuriance of Hybrids (I do not see this) & says he finds garden Plants varied from crossing vars. are earlier than ordinary vegetables. (The earliness is hardly same as greater fertility.) ? <u>ask</u> *table.✔ to each line/w* On account of greater but not equal to pure species fertility. Kolreuter considered these as only vars: ♣ G. thinks from actual experiments ♣ only the Hyosciamus as true varieties, because by cultivation one turned into other. *wb* Steudel makes agrestis a Synonym of H. niger G. says they turned into each other **579** *5–6u♠/w* same conclusions regarding these *7u "Bastard", 10u "Bastarde"/11u "absolut"/8–14w* says fruitfulness of Hybrids not absolutely ♣ proof of parents being only varieties *7–8m, 9–11m/w* ask author, I fancy means only <u>some</u> fertility. *wb* Examples of Hybrids very fertile but not as fertile as pure parents *wb*♦ These are not hybrids, but nearly the union of two pure species. **580** *table.w* The hybrid from these quite sterile ⇑*20–1w* seems to admit quite the crossing of varieties left to themselves & may be cause of return of vars to parent forms. says mongrels in their variation in successive generations may be classed like the Hybrids, which he has classed. **581** *wt* Says besides infertility Mongrels differ from Hybrids in ♣ varying in the first generation whereas Hybrids vary in 2d or in paternal & maternal reductions. He gives no case of <u>wild</u> varieties, when first crossed varying more than mongrels; at least I cannot remark any. *1–4m/w* (a) *6u "andere | Bastarde"/w* in other respects like Hybrid only more like to pure species. *8m, 10–25w* He evidently considers these very important characteristic differences (just respecting p.273) between ♣ crossing species & varieties ⇑*4–1m* **582** *1–4m/w* mainly repeats p.577 *9–10w* more accessible to impregnation of other vars *12–13w* More tendency to revert to parent form *14–17m/w* more variable *18u "gewöhnlich"/18–19w* commonly more fertile ⇑*6–1m/w* (a) *wb* (a) Lecoq states great variability in Iris, supported by observations of Berg, <u>hence suspect</u> that there may be variety-bastards – So necessary to show no need of crossing look at Potatoes & Maize & Rice!!! ♣ **585** *4–7w* The smaller proportion of Hybrids are "intermediate" **586** ⇑*14–12m/w* speaks of law of both organs being ready at same time! **587** *2a "Wimmer"* * 15/ all folling numbers wrong ⇑*10w¢, wb* see Corrigenda **589** *16c/w¢* **590** *2u♠/w* Natural Hybrids *5–8m* **591** *7–17m/w* cases of Verbascum self-formed Hybrids, yet offspring these Hybrids excessively sterile. **598** ⇑*15–11m/w* (a) *wb* says not know how long & in what limits keep true. but wheat shows how long can be preserved under same conditions. **601** *8–10m/w* The inner nature of Plants cannot be judged from outside.– **602** *4u "paniculata"/3–6m/w* He puts Mother first & Father after, some have followed an opposite course **605** ⇑*8–3m, wb* Thinks the facts of Hybridisation show that original species forever remain true **606** *6–7w*✍ all Q ⇑*4–1m, wb* as varieties can generally be propagated, as known for centuries, any alteration, if they ever occur, requires careful observation.– **607** ⇑*8–3m/w* (a) *wb* Points in which grafted Plants do differ from same raised by seed **608** *6–10w* sometimes less fruitful, sometimes more.– *10?, 16u "vollkommenere"/17u "zahlreichere"/18u "Geschmack | Früchte"/16–22w* seedlings generally bear more perfect & more numerous seeds than when grafted. ⇑*13–7w* sometimes life rendered longer, sometimes shorter ⇑*4–1w* longer in foreign trees **609** *10–14m/w* evergreen oak grafted on common cast leaves & Daphne laureola flowered in winter *15–22w* effect of one Pear grafted on an earlier kind was to make it actually later! *23wτ,* ⇑*10w*♦ 10 true is right ⇑*6wτ,* ⇑*3c/w¢* **611** ⇑*11u "Oleander"/w* cases of mottled leaves affecting the Stock. **613** *5–9w* Even the wood keeps distinct at place of grafting. **620** *2u "allein | vermischte"/5u "selbst | zu"/1–10w* a statement that two kinds of grapes – branches split & joined longitudinally produced striped fruit & crossed foliages. G. does not believe. ⇑*8–5w* other similar cases **621** *9–13m,* ⇑*12–9w* objects that these are cases of sporting ⇑*5–2m/w* ugh○ **628** *5–25w* case of sport in common Laburnum with flowers like C. Adami Is not this like the orchard case? Were they sterile? The sport & parent in Austrian Bramble are sterile. (Herbert has shown are sterile. in Hort. Journal) *wb* (B) He is dreadfully puzzled about the Laburnum case & says not analogous to anything known **629** *4–12m/8w*

B ⇑*14–4w* Power of grafting ♣ much longer than of hybridising; even very different genera (A) (It makes it the more remarkable that certain vars. shd. not do well together.) ⇑*11*/⇑*9w∉*, ⇑*7*/⇑*6wτ*, *wb* (A) I think I have heard it said same Family. *wb* Syringa Fraxinus Olea Chrisanthus – all Oleaceae **630** *wt* The relation of the different kinds which can be grafted on same stock is very different from the relationship on which hybridisation depends *2–7m, 8m* **631** *7–13w* A certain affinity necessary beyond doubt. *11c/w∉*, ⇑*16wτ*, ⇑*15u "organischen Structur"*, ⇑*9–8u "die | Individuen"*/⇑*11–5w* The above influences not only possibility of graft, but ♣ fructification & duration of life ⇑*5–1m*, ⇑*6u "Familien-Affinität"/wb* Family affinity, though greater difference between the graft & stock in wood, yet permits the graft. **632** *8–9m/u "schlagen | Diel"*/Q/*3–13w* great difference in powers of grafting. Pear & Apple though altered will with difficulty graft.– Difference in reverse case *18w* Will not hybridise. ⇑*15–12m/w* can be grafted but not hybridised **633** *11c/w∉* **635** *5–7m/5–12w* Puvis speaks of grasses modifying but not exactly crossing. Has Wiegman shown that grasses cross? ⇑*10–4m/w* 2 colours in turnips not capable of crossing **639** ⇑*14–11m*/⇑*14–1w* Genera which have perfect pollen & ovaries, but produce commonly no good seed, but will produce if impregnated by pollen of same species, specially by pollen of another individual **641** ⇑*4m* **648** *9–12w* Mainly how they worked p.354, 369, 374) *15u "Herbert"/m/w* See **651** ⇑*8–7m/u "Unkenntnis | Gewächsen"*, *wb* Ignorance of process of fructification in some plants has caused ♣ failures **653** *wt* cases in wh he failed but others succeeded *4–7m/7u "oben | 126"*, ⇑*13m* **654** *9–13m/w* has never seen ill effects from castration, except when all castrated. ⇑*9–5m/w* (a) *wb* Dichogamous plants less ♣ capable of hybridising; & very liable to crypto-hermaphroditism.– **655** *1–20w* (Can the pollen of another individual or var overpower own pollen?)– *8–9m/8–12w* Best generally to castrate at moment of opening of flower. *19u "Leguminosen"*, *20u "Malvaceen"/18–22w* Necessary have cut or open or partly or wholly cut away petals *22–23u*↔/*25–28w* Oenothera Epilobium Fuchsia Clarkia *22–23m/w* (a) (Quoted) ⇑*9–7w* Lecoq says pollen of Fuchsia not shed for 3 days after flower opened ⇑*5–1w* even whole corolla can be removed without injury to seeds *wb* (a) Anther ♣ ripe before opening of flowers in these Families & the fructification takes place not only some hours, but even days before flowers open. Then how do Cruciferae & Peas cross?? **656** *16w* Pincers **657** *14–18w* cut with scissor or pull off stamens, not touch anthers **658** ⇑*16w* (a) ⇑*4m, wb* Stigma of Lobelia in own climate seldom protrudes till lost capacity of being impregnated, & hence species bears no seed, but if anthers drawn over stigma produce plants.– I think this is meaning. **659** *1–2m/w* Pistil grows in Geum after impregnation. ⇑*15–11w* By many plants pollen & ovaries not ready at same time ⇑*7–4m/w* Impregnate easily, because Pollen keeps its strength *wb* Stigma generally ready when flowers open, but sometimes not ready for some time afterwards **660** *9–12w* Repeats impregnation several times. **662** *wt* Cultivated in Pots so thus excluded from cross impregnation *1–4m* **663** ⇑*9–1m/w* The artificial impreg of many flowers on same plant injurious to it.– **664** *wt* (a) The impregnation with own pollen, ♣ fertility always greater than in any Hybrid, & equal or at least near Natural fertility, but sometimes less.– Really this accounts for the (i a) of Hybrids.– *2–10m/w* (a) *10m* **665** *11–15w* Plants to be fertilised in chamber facing S.E. **666** *1c/w∉* **667** *11–15w* Many Hybrids bring seed in Pots, but not in open land. **670** *1m/wt* Isolation only superfluous in exotic plants when only one present *4–5u "Die | Nothwendigkeit"/2–8m/w* speaks of the absolute necessity of isolation (& so does Lecoq) which all shows how some crossing goes on. *8m, 14–16w* cutting off all flowers injurious **674** ⟨*fn nos corrected*⟩ **675** *3m* **677** ⟨*fn nos corrected*⟩ **678** ⇑*5*☞ **679** *4u "ganzen Habitus"*, *5u "M. longiflora"*, *14u "5,2"*, *15w* intermediate *16u "12,5"*, *17u "3"*, ⇑*10–9u "Farbe | Jalapa"*, ⇑*8u*↔, ⇑*10–5m/w* seed of this Hybrid returned to two distinct parent forms. *wb*◆ & so in Maize I am nearly sure 2. vars of seeds in Mongrels **683** ⇑*18–15w* fertility varies more in different experiments. **684** *wt* (Get Hooker to read over this list) There are important facts ♣ in this Table not noticed in my abstract or results. *3–7w* instances of series of fertility *12–13w* count how many pure species have (K) when self impregnated See whether any difference in two vars., I have seen to Verbascum *22w* Mothers name first ⇑*12w* succeeded with Kolreuter ⇑*11w* = arvensis Loudon Cat. ⇑*10w* = arvensis Steudel ⇑*8u "9"*, ⇑*15–3w* I do not think same species Herbert succeeded see p.653 are these the English species? (yes.) ⇑*1w* no of flowers no of fruit *wb* See how many genera no result, & genera I believe with close species: this bears on vars. *wb* I shd trust this more ♣ (see case p.706) more information given ? of results of self impregnation The very near to approach to (K) & yet the rarity of actual (K) makes me think the effect of artificial fecundation. **685** *wt* Hooker thinks that probably Canadensis & atropurpurea, are merely synonyms: Hooker thinks Canadensis & vulgaris distinct *5w* Siberia *8w* var. Hooker *9w* of vulgaris ?? *12–13w* Steudel var of atro-purpurea *14w* This means hybrid crossed by Father *22w* What Ask author Steudel makes var of atropurpurea *26w/27w* var of vulgaris *28w* var of atropurpur ⇑*13?*, ⇑*10?*, ⇑*3w* var. of vulgaris *wb* viridiflora is a Siberian species of Pallas var. of atropurpurea according to Steudel **686** *wt* In this country Hooker says C. littoralis or maritimum is considered a very close but distinct species *1w* var of vulgaris *3m*, *12–15m/w* Steudel makes synonyms *13w* Prop. Poll ⇑*23–17w* Dr Hooker considers undoubtedly vars. except steticum○ ⇑*22w* Prop pol ⇑*19w* wild var ⇑*18w* Prop poll *w* wild var ⇑*16–1w* In text p.197 & elsewhere Maritimus is spoken of as crossing with C. Behen Must be a misprint. anyhow C. Maritimus = S. inflata according to Steudel.– ⇑*15w* very different Hooker ⇑*14u*, ⇑*14–1w* all these i a &c are from crossing varieties. *wb (species names equivalent to Silene inflata Steudel)* Some authors think Silene italicus, pilosa There is nothing in Loudon Catalogue to make me doubt the conclus **687** *19m*, *25w* = incornis of Kolreuter **688** *wt* Asa Gray considers the D. tabula as var of D. Stramonium & introduced into America Dr. Bromfield in Phytologist says he has tried every gradation between these two forms & yet here not fertile (K). This then is case of some sterility, if we are to trust the same class of facts as we infer sterility from.– ⇕*w* See p.385 for degree of sterility of D. tabula & stram ⇑*23w* Acta○ ⇑*13w* = plumaria Linn. **689** ⇑*20w* Prop. Poll **695** *17w* Prop. Poll. **696** ⇑*18w* Croatia ⇑*11w*♦, ⇑*1w* perhaps var. **697** *wt* [p.225 Much important on reciprocal crosses in Digitalis.] *11w* var of last Lindley makes *12w* perhaps ♣ var *17w* some think var of 2. last *17w* ambigua of Kolreuter p.175 ambigua anyhow probably distinct *19/20w* perhaps var ⇑*19w* var. of ferruginea acc to Lindley **698** *2m/wt* = angustifolium Steudel ⟨*u henceforth: numbers in cols. 2 and 3*⟩ *6u/w* Prop pol *7u*, *6–15m/w* crosses more fertile than with own pollen. *10w* Yet Newman says quite fertile *15u/w* Prop. poll. *22w* Prop. Poll. ⇑*8w* Dr Salter Bell says quite fertile Phytologist **699** *18m*, ⇑*19w* = niger ⇑*18w* = niger Probably vars. ⇑*13w* = niger? ⇑*12w* = niger ⇑*12–11w* perhaps vars. *wb* p.578. G. says agrestis = albus as known by experiment – Steudel makes albus distinct – **700** *10w* = undulata ⇑*20w* I think♦ Herbert p.345 succeeded & they sowed themselves. ⇑*19u/!*, ⇑*13–12m*, ⇑*8–7m/w* Prop. Poll **701** ⇑*13md/x*♦, ⇑*7x/w* Prop. poll **702** *7–8md*, *11m*, ⇑*18w* Prop. pollen ⇑*13m/w* Prop Pol ⇑*10w* This is speciosa fertile according to Herbert p.346 **703** *14w* = sylvestris *15w* Prop pollen *15–20m/w* see my slip of Paper about Synonyms *18w* var. self im *20w* = dioica *23m*, *24w* = Silene nicosa ⇑*18m*, ⇑*13w* = Silene *wb* It is evident from Steudel that Silene, Lychnis & Cucurbitum all most closely allied **704** *9w* p385. contradicted ⇑*16–12m/w* Here it is evident that first cross normal ⇑*16–7m/w* Prop. pollen **705** *22m/23m/25m/23–25m/w* see Beitrage p598. & compare with p.385 of this Book. Shows that (K) is quite correct ⇑*13*/⇑*12*/⇑*11m* **706** *4u/1–4m/w* What differences *19u*, *20m/!!*, *24m/u*, *25m*, *27m*, *19–27w* (This very important) see Koelreuter about this. *23m*✎, *30m*✎, ⇑*19x/w* Loudon ten week start O ⇑*18m*, ⇑*16x/w* smooth ⇑*15m*, ⇑*7m/w* Prop. poll. *wb* These seem distinct ♣ **707** *2m/w* Kolreuter raised them *4m/?*, *25m/w* Sageret raised them p.35 ⇑*5m*, *wb* according to Steudel nearly all these are true species of Nicotiana **708** *26m/w* f *29m* **709** ⇑*15m* **711** ⇑*9m/w*✍ Prop P. **713** *4m*, *9m* **717** *27w* = Lamarckian ● **718** *22–23m/w* p.168 some authors think vars. ⇑*19u/m/w* Prop ⇑*18u*, ⇑*18–11m/w* More fertile than with own pollen ⇑*12u/m/w* others have succeeded **719** *6w*¢, *9w* or cocanus *16w* cocanus *20w* = vidacea St *22m/w* see Herbert p.379 More fertile than either parent **720** *3w* = vulgaris *14–30m/w*

Here are plenty of undoubted vars. producing only i a.– Great effect of artificial impregnation or separation in House. *14m*, *15m*, *20m*, *21u*↔*/m*, *29m*, *30m*, *32m/w* This really only cross between two peas *32m*, *33m*, *34m* **721** *wt* number of Flower *wt* of Fruit *5w* Prop. Poll *15w* Prop pollen *22w* vars fertile ⇑*24w* Florist var of Oxlip. Oxlip primrose ⇑*24w* Not normal or K ⇑*23–21m*, ⇑*20–19m*✏, ⇑*17–15c* ⟨*c henceforth: entries in cols. 2, 3 and 4 crossed out*⟩, ⇑*14w* Oxlip ⇑*13–3w* p.247 it is evident that he did cross elatior & officinalis, Table not correct ⇑*13–12m*, ⇑*11c*, ⇑*10c*, ⇑*9–8m*, ⇑*7–5m/w* cowslip ⇑*4w* cowslip Elatior ⇑*4–1m*✍, *wb*♦ If this be elatior calycantha, most strange **722** *wt* I see he has not tried Primula proprio polline *3c*, *4c, 5w* Cowslip *6w* primrose *6–7m*✐, *8c, 9c, 10w* Oxlip var *11w* Oxlip. *16w* = floridum ⇑*16w* Prop. poll. ⇑*15w* Silene inflata ⇑*14m/w* S ⇑*13w* S. pilosa ⇑*12w* S. italicus **723** *26w* Prop Polline ⇑*10w* Prop. poll. *wb* I see Moerch considers same species p549 Gaertner says perhaps only varieties **724** *wt* It is impossible to make out whether vars. albus & luteus are put first & second on principle or by chance *3u*✎, *3–4w*♦, *4w* Yellow? Yes says p.280 *5–7md, 10w*♦, *8–14w*♦ Colour? If Yellow half agrees & opposed to rule of vars. of same colour most opposed *21w* agrees with *20–25m, 30w* 1845 1827/ <u>18</u> ⇑*14w* Blattaria ⇑*8w* Colour? ⇑*8m/wb* Steudel make = virgatum, which is yellow ⇑*1x*✎*/w* 286 161 **725** *3–4m, 9w* yellow *10–13md/w* opposed to rule *17w* Probably yellow, both parents being yellow *17–27w* Even Babington admits there are 2 coloured vars of V. lychnitis *20m, 26m, 29→, 30c ⟨c henceforth: whole entry crossed out⟩, 32c/w* These lines merely guiding *34c, 37c, 39c,* ⇑*13*/⇑*7*/⇑*4*/⇑*3*/⇑*2c,* ⇑*10*/⇑*8*/⇑*6*/⇑*5*/⇑*1m, wb* 226 182♦ 119♦ 142 x✎ **726** *1w* Colour see Index not in index *19m, 25w* yellow *26–28md/w*♦, ⇑*21w* yellow ⇑*9*–⇑*20→,* ⇑*9?,* ⇑*9c, wb* 234 x✎ 83 **727** *3w* yellow *5m, 6–11→, 7–8w* opposed to rule *11c/w* why luteo put first? *15w* Purple *28w* yellow ⇑*20w* why luteo put first *wb* 179♦ 201 x✎ 68 **728** *wt* years no of flowers number of seed *1w* bright yellow *2m, 4–9→, 19w* yellow *20–23→, 22–28→,* ⇑*13–12u*✎ *⟨first 4 columns⟩/w* x✎ 138 84 ⇑*11w* = Scrophyll ⇑*8–1m*/⇑*8–1m*✍*/w* vars yet all i B. & i g. *wb* 22 **730.b** *62m, 73m* **734** *62w* at Hort Soc.? account of experiment with Peas, see to this *67w* Berg Read variation of Leguminosa *17w* <u>Read</u> **736** *82m, 110–112m* **737** *129m, 137w*♦ 138 *140–141md, 145/146m/w* <u>Read</u> *149–152m/w* Herbert ♣, 152 Worth reading or consulting p.145 of Book *157w* See to this Blyth **738** *186–188m/w* seeds retaining long vegetating power *191w* Omalius disputes vars going back *207w* <u>See to this</u> *3m*✎, *25–26w* Read Girou on vars of Cucurb crossing Sageret do not crossing *26x*✎ **740** *X.10m/x/w* Read **742** *18–19m/x* **743** *XVIII.15x* **744** *27m/w* Read on curious sport in Oenothera *47–48m/w* Read on the 2 Anagallis being vars. **745** *11–12m* **746** *XXI.2w* Read *3m/w* Beitrage *6–7m/w* Read *XXII.1–2w* Read **747** *17w* Zuccarini on sterility of Oxalis from C. of Good Hope *22w* Read *24–25m/w* Read *27w* Read *28w* Read *XXIII.7w*♦ Read *21w* Read **748** *98–99m* **752** *59m/w* But opposed to much alteration Perhaps worth reading *54m/w* cases of transformed plants p.500 text *55w* nothing *56m, 57m* **753** *21m/w* on duration of seeds **754** *8).5m, 10).3w* p.540 **755** *13).13m/w* read **756** *XXXIV.2md, 3w* See *4w* very important Puvis *6w* Read *12–17m, 17w* Sageret read *19w* Herbert *20w* Read *wb*♦ To get titles it will be necessary to look over these notes at beginning of these notes, for it is impossible to make out by Index the titles **757** *23w* Read? *45w* Theophrastus on crossing plants: how old! *51w* I dare say V. Baer quoted by Lecoq in V. Berg *52w* on variation of Iris **759** *XXXVII.2w* Read Link on relation of grafting to Hybridisation *3w* Puvis Read?? I have got impression that Puvis no good authority **760** *46w* Read? *53w* x Read **761** *64w* Diel *XXXVIII.5* Puvis on crossing of grasses *22.w* x Beitrage on pollen & Stigma being ready at different times **762** *45w* Read **763** *Blyth.m* **778** *Lychniti-pyramidatum.m* **781.b** *2m*✎ **789** *Vater.w* 253 **790** *"Wahlverwandtschaft".u/w* "Elective affinity" Chemical term Dict.

GASTALDI, Bartolomeo *Lake habitations and pre-historic remains* trans. C.H. Chambers; London; Longman, Green, Longman & Roberts; 1865 [Down]

NB O/

GAUDRY, Albert *Animaux fossiles du Mont Léberon* P. Fischer & R. Tournouër; 1873 [Down, I]
ex, ti, tm

13 *25–27m* **75** *6–13m* **89** *1–2m, 26–32m* **91** *19–23m* **92** *29–31m, wb* Yes these are old forms generally verging to extinction Jäger **93** *1–3m* **94** *9–15m, 28–32m* **96** *1–4m*

GAUDRY, Albert *Animaux fossiles et géologie de l'Attique* Paris; F. Savy; 1862 [Down]

GAUDRY, Albert *Les Enchaînements du monde animal dans les temps géologiques* Paris; F. Savy; 1878 [Down, I]

GAUSSOIN, Eugene *The island of Navassa illustrated* Boston; 1866 [Down]

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GEGENBAUR, Carl *Elements of comparative anatomy* trans. F. Jeffrey Bell, revised & with preface by E. Ray Lankester; London; Macmillan & Co.; 1878 [Down, I]
⟨markings by FD⟩

GEGENBAUR, Carl *Grundzüge der vergleichenden Anatomie* 2nd edn; Leipzig; Wilhelm Engelmann; 1870 [Down, I]

v *25m, 26m*

GEGENBAUR, Carl *Manuel d'anatomie comparée* trans. C. Vogt; Paris; C. Reinwald & Cie.; 1874 [Down]
phy

NB 37 fibre-cartilage
37 *21–24m/22–23u "tissu | fibreux"* **38** *11–15m*
℘

GEGENBAUR, Carl *Untersuchungen zur vergleichenden Anatomie der Wirbelthiere* 3 Hefte; Leipzig; 1864–1872 [Down, I] ℘

GEIGER, Lazarus *Zur Entwickelungsgeschichte der Menschheit* Stuttgart; F.G. Gotta'schen; 1871 [Down] ℘

GEIKIE, James *The great ice age* 2nd edn; London; Daldy, Isbister & Co.; 1877 [CUL, I, ED]
geo, t, ti

NB1 ◊
362 Glaciation S. of Thames
364○ Glaciation○
3◊ ◊ Glaciation ◊
405; 427; ◊; 521; 548; 550; 554
NB2 427 Post-glacial Mammoth & Rhinoceros; 547; 564
226♦; 374♦ Erratum?; p.14 at top. at ● you speak of glacier theory before iceberg theory; but I heard of iceberg theory & alluded to icebergs in S. Am. at last ● of &c but glacier theory 415♦ Holsts; Axel Blytt also p.545♦
Skertchly What a first-rate observer whom I believe always ● on sound observations
484 Glaciation in S. Hemisphere; 506 Stones standing on end
12 *20m* **34** *11m* **78** *6m* **85** *4m* **101** *zb* **133** *2m* **191** *19m* **226** *12–23m* **227** *37m* **326** *12m* **374** *14a "certainly", 14c "posterior", 14w*♦ anterior **386** *15–20m, 22–38m* **415** *37–41m* **416** *20m* **427** *24u "postglacial", 27–31m, 29u "mommoth | rhinoceros"* **442** *7–8m* **485** *1–9m* **487** *8–9m* **488** *11–13m* **491** *16–19m* **492** *14–16m, 20–22m* **496** *13–15m, 29–31m, 36–37m* **499** *5–7m* **502** *20–22m* **504** *16–18m, 25–27m* **505** *32–35m* **506** *15–21m* **511** *11–13m* **521** *2–5m* **524** *2–5m, 23–26m* **527** *19–23m, 24–29m, 31m* **528** *6–10m, 16–20m, 27–30m* **529** *1–3m* **530** *4–7m, 8–10m* **531** *4–6m, 31–34m* **532** *5–7m* **533** *18–20m* **534** *19–20m* **540** *10–15m* **541** *16–18m, 27–30m* **542** *2–4m* **545** *3–13m, 42–45m* **547** *26–30m/w* subsequent to great glacial deposit **548** *1–3m, 29–31m* **550** *18–21m* **551** *11–15m, 37–39m* **554** *1–2m, 13–14m* **555** *15–18m* **556** *3–6m, 26–28m* **559** *4–7m* **563** *8–10m, 18–21m* **564** *18–23m, 27–30m* **565** *5–7m* **567** *34–37m* **568** *44–47m* **613** *18z*

GEIKIE, James *Prehistoric Europe: a geological sketch* London; Stanford; 1881 [CUL, I]
geo

NB1 132 – brick earth covering gravel; 165 Do
409; 414; 432 or (500); 457; 335 & Chap XIV
loess (Mackintosh Erratics of England as far as Wolverhampton)
Mr. Kerr p230 Falkland Isds frequent
As a bay the Severn floods from melting of snow more turbid than from rains.
101; 111; 112
NB2 166 Richthofen
⟨*rest by FD*⟩

38 *6m* **50** *3–8m, 11–14m/12–13u "equable | times"* **54** *8–12m* **75** *⇑15–11m* **89** *⇑9–6m* **101** *10–12m* **102** *4–8m* **111** *14–17m* **112** *⇑7–4m* **114** *13–18m/w* Conclusions **117** *8–11m* **118** *13m* **132** *⇑3–1m* **154** *13m* **165** *11–13m* **166** *1–5m* **167** *10–13m* **239** *⇑7m* **260** *⇑11m* **261** *zb* **263** *16–20m* **335** *⇑7–2m* **347** *15m* **355** *8m* **414** *⇑16–13m, ⇑10–3m* **420** *⇑11–9m/z (drawing), ⇑7–3m* **421** *11–15m/z (drawing), 20–24m/z (drawing)* **422** *10–15m, ⇑10–7m, ⇑2–1m* **425** *⇑12m/u "Oaks"* **428** *5–8m* **432** *5–7m, 15–17m* **435** *2–4m* **457** *9–15m* **461** *⇑23–19m, ⇑17–16m/⇑17u "consisting | pine", ⇑12–7m* **462** *11–15m, 17–21m/20–21u "rot | bogs"* **483** *⇑2–1m* **486** *⇑3–1m* **487** *⇑7–3m* **488** *7–9m* **495** *⇑14–10m, ⇑1m* **544** *14–16m* **552** *9–12m* **553** *⇑12–9m* **554** *⇑9m* **555** *12–15m* **561** *⇑9–6m*

GENTRY, Thomas G. *Life-histories of the birds of eastern Pennsylvania* Philadelphia, 1876 [I] [CUL.1900]
beh, v

NB1 O/
NB2 I have read only first part
Very Dull
Variability of nesting

GEOFFROY SAINT-HILAIRE, Étienne *Principes de philosophie zoologique* Paris; Pichon & Didier; 1830 [CUL]
af, cr, em, he, ig, mn, rd, sp, tm, v

SB ❑β
65 Curious statement on what plan animals created (good to put at end of Chapt. 6) Q✍
It is proper to speak of him shortly as M. Geoffroy
214 Law of connexion invariable
215 Properly speaking there is but one animal
215 Q Monstrosities, always resembles other species (allude to this in Ch. 7)
216 speaks of ultimate form of species as irrevocable!
218 Does not seem to attribute Unity to inheritance for speaks of it as Law

11 *3–10m* **12** *4–15m* **19** *5–11m* **32** *18–30m (Milne Edwards)* **33** *5–10m, 11–15m (Savigny)* **49** *8–12m (Laurencet, Meyranx)* **55** *26–29m* **56** *19–22m* **57** *1–4m* **59** *23–27m/w* ancestral & modern types **61** *19–23m* **65** *12u "par | composition", 14u "ressemblance", 23–24w* Curious words *26–29m, 26"..., 27Q✍, 27u "bien | fécond"/28–29m, wb* I demur to this alone **66** *1–4m/1a "nature"/wt* all this will follow from selection. The unity of course due to inheritance **69** *18–31m (Cuvier, Serres)* **71** *12–24m* **83** *3–16m* **111** *18–22m* **114** *18–23m* **115** *1–7m* **209** *1–6m* **210** *1–20m/wt/1–5w* As it appears to me strongest argument against G.H. is existence of trees, which are so hardly separate○ from animals **214** *4–6m* **215** *1–5m, 16–28m/21–23Q/26u "développement naturelle"* **216** *1–15m (Tiedemann, Serres)/8–9u "irrévocablement"/!, 17–21m* **217** *18–26m* **218** *wt* All this is not G.H. writing but he approves & publishes it *4–18m/10–12!/10u "laisser | distraire"/11u "des | organes"/14–15u "par | imposée", 18–21m, 24–26!/25u "créés* **219** *25–30m* **222** *1–16m (Cuvier)*

GEOFFROY SAINT HILAIRE, Isidore *Essais de zoologie générale* Paris; De Roret; 1841 [CUL, S]
ad, af, beh, br, cr, ds, f, gd, he, hy, ig, in, is, rd, sl, sp, sx, sy, t, tm, v, wd, y

NB ♦ Read 420 to 468 again
SB ❐ℜ
1
83 With respect to rudiments Vicq d'Azyr says native does not depart from primitive model
90 old Geoffroy states never new organ – in relation to Electric Fishes 94 "Nature always works with same materials"
142 on parallel series by ♣ Geoffroy
165 Goethe believed in Balancement
167 Believed in change of species, as did old Geoffroy. "Modificateurs ambiants" sur l'organisme". Yes this is his belief 247 Introduce in Preface
257 Distinction between tamed & domestic
260 On animals not breeding. Rein deer good case of animal not spreading not interfering with being domesticated in Ch. 2. M.S. add to case of Goose
281 argues well that F. Cuviers doctrine of Sociability not only key to domestication 286 do
292 Pallas Spicilegia zoologica
⟨*over*⟩ 2
297 Art. Mammifera Dict. Class. Hist. Nat. – on colour of domestic quadrupeds
298 Cat intestine longer
299 Dog with split○ nostrils
306 We have no case of Spaniel or Blood Hound & with Savages (CD)
344 Mammals in close sub-groups do not differ much in size
350 Remarks on small isld having small mammals – see how small isld have mammals in Malay Archipelago 353 forgets Java & Sumatra! I contradict his statements flat – think of S. America formerly.
382 insists on difference of size in allied dogs. 381 Table of measurements.– All I need say is that author has insisted strongly on differences in size. compared to wild species
433 Old Geoffroy on degree of influence of external conditions on species – Mem. Acad. Tom. xi.p.93.–
⟨*over*⟩ 3
442 Madagascar a fourth continent
445 Ceylon same mammals with India
491 On spots &c on young quadrupeds
493 Cross between gold, silver & common pheasant just mentioned Q
496 Cases of ten species of Birds which have assumed male plumage
506 changes of habit in old Hen, like cocks
513 Horns growing on old female Deer
516 – His law of Mongrels & Hybrids. N.Q.

7 *5–8m* **49** *13–14m/?/w* what *14–30m* **73** *20–21m (Newton)* **75** *3–6m/3–15w* This argues against descent of species being held by the Geoffroy sect of Philosophers **76** *26–28m* **77** *15–19m* **79** *28–29m (Leibnitz)* **81** *3–8m/4–6?, 25–32m (Herder, Demaillet, Cuvier)* **82** *20–23m, 26–27m (Vicq d'Azyr)* **83** *1–2!/u "général | regret", 6–11w* compare with Pig with solid Hoofs– *23–25m, 29–31m/24–31w* compare in this respect skull of Greyhound & Bull-dog– *wb* Decrease in size of Frontal Bone in Hornless ox: strictly analogous to the intermaxillary bone of man– **87** *14–19m, wb* compare this fundamental idea with what Decandolle has shown has taken place in Cabbage.– **89** *7–11m* **90** *17–23m/17u"il|nouveau", 27–28?/u "sélaciens", wb* see previous note for reference **91** *6–7?/7u "polyptères"* **94** *9–10"...", 10–12m* **96** *22–24m (E. Geoffroy)* **142** *19–22m* **143** *3–17m/7–10?, wb* why Man more perfect than coleopterous Beetle or Bee **144** *18–21m/19u "semble"* **146** *18–20m* **147** *23–28m (Serres)* **148** *27–29m (Blainville, Cuvier)* **151** *11–17m* **153** *8–10m (Goethe), 23m (A. Saint Hilaire)/w* Botany **165** *19–25m, wb* What is developed more in Apterix in consequence of little wings.–?? **166** *1–9m* **167** *10–11m/u "Goethe" "Buffon et Lamarck", 12–15m/13u "modificateurs ambiants" 18u "1822", 23u "docteur Koerte"/ 20–25m/w* see this in Goethe's Works translated by Martins **169** *13–17m (Duméril, Blainville, Goethe)* **199** *15–21m* **200** *7–16m* **202** *2–9m/3–4?* **203** *3–7m* **205** *8–21m* **207** *15–17m* **232** *25–28m (W. Edwards)* **237** *4–12m, 16–21m/w* assumed *26–28m, 29u "quelquefois|nuls"* **238** *13–17m/19u "espèces sauvages", 23–24m/24u "variables|inégaux"* **239** *27–29m, wb*♦ true wild varieties, would be equally ready to sport *wb* How comes it that there is species to every small variation of conditions? – so it is – How another question **240** *1–9m/1–2u "rigoureusement fixée", 16–19m/w* does not allude to selection *27–29m/w* Man some involuntary selection **241** *18–23m* **243** *25–27m/w* don't understand *wb* rest of this section Nothing **244** *12–17md* **246** *24–29m (Dureau de la Malle)* **247** *12–17m, 26m (Buffon, Goethe, Lamarck)* **257** *1a/u "apprivoisement"/wt* tame wild *1–2m/1a/u "captivité"/wt* chained wild *23–24m* **258** *1–4m, 10–11m, 25–26u "civettes|marabouts"/w* Guanaco **259** *wt* capital cases of non-breeding *1–3m/3u*♠, *6a/u "guépard"/5–6w* hunting leopard *6–12m, 8–9u "éléphant", 17–19m, 27–29m, wb* In case of Elephant, cannot be considered as weakling – when we consider feats in war – less so than the stunted elephants in North India – **260** *wt/1–19w* Ferret not very tame yet breeds – not less tame than many of Renggers quadrupeds– *18–20m, 19u "mais|race", 24–25m, 25u "mais|mêmes", wb* The effects becoming hereditary, show, that apprivoisement "tameness" has an effect on organization: hence is new condition. Hence sterility= **261** *5–15w* we must not assume camel could not *15–28m/18w* Buffalo?? *21u "partout"/w* Camel?! *22w* Rein Deer. *23–25m, wb* The present great diffusion, so different from other mammals, renders probable this is effect of acclimatisation – contrary of camel. shows not necessary. **263** *12–14m* **265** *12–21m, 22–29md* **266** *1w*♦*/3–8w* Aperia breeds readily in S. America Rengger **267** *6–8m, 13–16m/16a "oie"* Canada & Chinese Geese *18–21w* Fallow & Rein Deer? omitted **269** *12a "lama"/8w* 2 spec *13u "l'yack"/w* Hybrid? *23–24u "temps immémorial"* **272** *fig.m* **274** *1–5m, 15–17m/16–17u↔, wb* Neither Cat, nor Ferret social **277** *6–7w* Guinea pig No *8–13w* Ass does yet – ferret – Rabbit = Fowl – *9u "sauvage"/9–10m/w* because not of much use **278** *27–28m* **279** *1–5m (F. Cuvier), 8u "solitaire|domestication"/8–10w* yet many quite tame *11–28m/11u "chat|furet"* **280** *1–5m, 28–29m* **281** *1–2u±, 5–6u "importance exclusive", 8–9w* Zebra *11–13m/12w* untame? **282** *3–6m/5u "alimenter", 16–19m, 24–29m/w* opposed by monkeys *wb* this doubtless much easier in social intelligent animal – feeding on vegetable food.– **283** *8–11m/w* no, not in wild ducks *15–25m* **284** *16–19m, 22–26m* **285** *1–3m, 5–15w* this last argument certainly shows that these species. as well as families probably were not easy to "tame". *11–13m, 14–17m, 17–22w* Guanaco, would make one think some species happened to be as easy. *18–21m* **286** *1–4w* is this so? Lord Spenser *4–5m, 9–14m, 23–25m* **287** *9–12m, 22–29m/22–23u "plus|avantage"/ 25u "et|soumettre", wb* Australian dog shows by what little advantage may be induced to take pains– **289** *1u↔, 6–8!, 14–16m, 27–28m* **292** *24–26w* In Royal Soc Library? *25–27m (Pallas)/u "Spicilegia zoologica"* **293** *12–14!/u↔ "fixité|espèce"/w* in France *14–15u "que|encore", 19–20m/u, 21u "variations", 22–23u "dénuées|variations"/w* 1– p.L; 2 p.294 **294** *wb* – only assumed there not proven – **295** *2u "intensité", 9–10m (Cuvier)* **296** *wt* would say descended from several wild types.– *1–5m, 10–12m/!, 16–22m* **297** *3–5m, 13–14m* **298** *9–12m, 15–20m* **299** *3u "crâne|supérieurement", 6–7w* sudden varieties *9–12m/9u "autre|palmées"* **300** *21m, wb* The principal value of this Sect to me is showing other motives besides facility of variation, has determined the domesticated animal – & therefore that variation would probably have occurred in nearly all, which must have been selected.– **303** *1m/u "de Pallas", 13–14m/?, 17–22m, 23–28m (Roulin)* **305** *13–16m* **306** *10–15w* non-selection *11–20m* **307** *wt* The following sections not very important.– **312** *14–17m* **313** *8–9m/9u "si|réussissait", 26–28m (Temminck)* **314** *6–8m* **315** *26–27m/w* no notice of selection **320** *wt* Mr Blyth 10?! *1–3m/u "six espèces" 11–12m/11u↔, 19–21m (Duvaucel, Cuvier), 29–30m* **324** *13–15m/13u "à|degré",* *wb* Spanish ass & Sykes little ass **339** *wt* All these sections vague & of little value to me *12–17m/w* Lizards unevenly so **340** *3–6m, 13–19m/w* Whale & smallest porpoise **342** *10–12m* **343** *5–18m (Blainville), 13x/→/wb* in short in sub-genera no great diversity of size **344** *1–9m, 4x, 22–26m, 27–29m, wb* like what Lund says anciently was in Brazil– **346** *4–9m, 15–26m, wb* Polar Bear! **349** *7–14m, 17–18m, 24–26m, wb*♦ was S. America once desert.– like Siberia **350** *6–7u "très-petites"/?, 20–24m* **351** *1–5m (Virey)/2–3u "ceux | déserts"/w* S. Africa **352** *17–24m, 20–24m, wb* Bull grows large in Falkland ?– Horses smaller.= are the White Bulls very large? **353** *11x, 13–15m/w* Java!! Sumatra *21–25m, 26–28m, wb* X It is odd no fragment of continent – is it effect of few only being supported – their inter-breeding destroyed by men – Auroks decreased in Russian Forest **354** *24–28m* **355** *21–23m/22u "cerfs"* **356** *3–5m, 9–12m, 17–20m* **363** *14–32m, 16–18!!/m, 17–25m* **364** *10–15m* **366** *1–3m, 24–29m* **367** *9–14m* **368** *16–22m* **369** *8–11m* **370** *14–24m/w* all very loose **371** *3–6m* **374** *12–14m, 24–28m, wb* Mountains = Northern plains **375** *12–18m/w* How dreadfully false when thinking of Sumatra **376** *wt* Megalodon!! **377** *16–19z* **378** *1–21w* Fatness element peculiar to domestic animals & Greater Prolificness *12–13m/?/u↔, wb* Domestic animals are forced into more various uses & exposed to more varied conditions, hence change of size more – but differs only in degree & not kind **379** *7–12m/w* The subsequent remarks well prove this = *23–27m/25–26u↔, wb* because not selected for this end– **380** *16u "de chacal"/15–16w* S. America! **382** *7–13m, 14–16m, 21–23m, 26u "au furet", wb* do they differ more than Cats.– **383** *25m (Dureau de la Malle), wb* Before referred to **384** *8–10m, 15–29m* **385** ✍ *wt/1–14m/w* Aug. 1841. Saw Shetland Pony exhibited. Whose at withers I measure was 32 1/2 inches (& less in centre of back) – Beautifully formed – I presume have no aboriginal horses. *4a "taille"/8–9w* 34.9 English Indes ✏ *12m/u "froides"/w* No India *14u "est | connu"* **386** *5–7m* **387** *15–18m* **388** *9–11m, 20–23m* **389** *15–20m, 28–29m* **390** *19–24m* **392** *16–20m* **393** *11–17m* **404** *24–29m (Villermé, Haller), 28–29w/wb* & doubtless hereditary **405** *1–m* **407** *10–25m/13–16?* **415** *24–28m* **421** *22–24m* **430** *9–12m* **433** *24–26m (E. Geoffroy)* **434** *1–7m, 7–14m, 16–24m (Cuvier)* **435** *1–6m* **437** *1–10m/3–5w* dont understand *12–20m, wb* He overlooks successive creations – not worth arguing against such a view as this pretended one of Cuvier **438** *1–5m, 17–20m/?* **440** *1–3m, 8–11m, 15–18m, 27–28m* **443** *11u "archipel Indien"/10–16w* How absurd remarks India & East Indian islds *25–28m* **445** *12–22m* **459** *3–6m/5u "dans | individus", 18–24m* **489** *6–16m* **490** *wt/1–9w* The case of Irish Hare which turns when old, makes one suspect not final cause Acquatic birds being white V Dr Fleming – At least my theory will prevent those animals being white wh would be so injured by it– 3–7m/x, 27–28m **491** *13u "seul"/w ?? 15"..., 15–32m* **492** *8–12m, 20–24m* **493** *22–26m/23–24Q* **495** *9–11m* **496** *9–10u "femelle | paon", 14u "poule", 14u "canard", 20u "dix espèces", 24–26m, 27–29m (Yarrell)* **498** *12–17m* **499** *27–29m* **500** *1–2m, 25–27m* **501** *11–13m* **504** *1–4m, 10–13m, wb* good case of adaptive sexual structure **505** *18–21m, 24–26m* **506** *8–12m (Home), 28–32m* **507** *1–2m* **510** *4–8m (Edwards)* **511** *10u "poules d'Inde", 19u "encore"/w* Blyth **513** *8u "paons"/15–18m, 22–29m/29u "chevreuil"* **516** *6–14m, 17–22m/20–22u±/19–20w* N.Q.

GEOFFROY SAINT HILAIRE, Isidore
Histoire générale et particulière des anomalies de l'organisation chez l'homme et les animaux 3 vols and atlas; Paris; J.B. Baillière; 1832–37 [CUL]
af, beh, br, ct, em, f, gd, h, he, hy, ig, in, mn, phy, rd, sp, sx, sy, t, tm, v, wd

vol. 1 NB Have I read the Philosophie Zoologique
p. 241 Book = Edwards Suites Races Humaines
(?p.677 Book worth getting? most cases seem given in text) ??
p.711 Coll of Surgeons worth consulting

16 *wt* Embryology *1–2m* **18** *11–14w* What is difference? *14u "l'âge embryonnaire"/m, 15u "l'âge foetal"* **22** *8–14m, 14–32w* I do not see how the reverse could be effected even if doubt monsters start from the germ *30–31u±* **23** *8–11m* **24** *6–7m, 15–16m/16u "Loi | soi"* **25** *1–3m/m*✎ **39** *12–17m/13u "qui | ses", 18–19m, 24–28m/u±* **52** *14–18m, 25–26m* **53** *1–3m* **59** *29–33m* **60** *2–11m/5u "leur | à", 31–33m* **61** *30–32m/31–32u "un | même"* **62** *5–12m, 30m* **64** *28–31m/28–29u "on | rudimens"* **104** *13–25m, 17–20m, 27–32m* **105** *26–32m/x, wb* x I ought to apply it to Varieties **115** *18u "un | placés" "l'habile anatomiste", 20–22m/20–21u↔, 32→* **116** *16–18m/18u* **129** *12–13m/12u "extérieur | congéniales", 30–31md/31u "sont | congéniales"* **131** *16–20m/18u "foule | cas"* **143** *9–14m/9u↔/13–14u±* **147** *7–9m/8u "mais | ans"* **152** *12–13m, 15–17m, 19u "Dans | vieillesse", 21–23m,*

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25–26u "fort | moyenne", 27u "dont l'un", 28u "lui", 31–33m **153** *8–12m, 31m* **154** *4–12m, 5–8m, 10–12m/11u "dessus | moyenne"/12u "à | nain"* **158** *25–27m, wb* p.164 exception **159** *6–9m/8–9u "bien | élevée", 16–18m, 21–30m* **160** *7–10m* **161** *13–32m* **164** *8–10m, 22–27m* **165** *7–12m, 21–22m (Blumenbach) wb* Rengger gives plenty of cases **167** *9–17m* **183** *16–19m, 26–32m* **184** *9–12m, 28–32m* **185** *24–27m* **186** *1–3m, 14–16m* **189** *4–8m, 15–16m* **190** *7–15m* **191** *22–26m, 29–33m, wb* The Laws of growth & reproduction being so allied, may it explain any of the facts of sterility? Hybrids not. **192** *5–22m, 28–33m* **193** *29–33m* **196** *4–16m, 22–24m/22u "transmissible"/23u "Il | point"* **208** *24–31m* **210** *17–20m, 23–25m* **211** *2–4m, 17–21m* **213** *1–4m, 19–33m* **215** *4–15m* **216** *5u "particulier", 6–8m, 29–33m* **217** *1–3m, 3–8m, 14–16m/15–16u "mais | tempérés"* **218** *29–31m* **219** *9–12m* **220** *6–9m/9m* **221** *1–6m, 8–13m, 21–26m, 32m (Dureau de la Malle)* **222** *12–14m, 23–25m* **223** *9–17m/w* This is case of animal being smaller northwards *19–24m* **224** *30–33m* **225** *5–9m* **227** *8–9m, 15–17m, 26–31m* **229** *3–16m* **231** *11–13m, 14–17m, 26–31m* **236** *26–33m* **240** *20–26m, 27–31m, 32w* (Last page) Coll of Surgeons. **241** *33m (Milne Edwards), wb* New Edit? Never published Balliere **242** *13–20m/13–16u±, 21–27m, 28–31m* **243** *1–3m, 8–14m* **253** *4–8m, 21–23m, 24–26m* **254** *1–3m* **255** *28–32m/w* corn==cutter **258** *26–28m, 29–33m/30u "dogues"* **260** *31–32m* **261** *1m, 8–10m, 19–22m* **262** *wb¢¢* **263** *7–8m/7u "frères | pesait", wb¢¢* **269** *5–12m, 23–28m* **270** *6–7m, 32–33m (Aristotle)* **272** *6–8m/u±, 14–17m* **275** *30–33m* **274** *1–4m* **276** *28–29m/*Q **278** *1–2m, 29–31m (Meckel), wb* There seems gradation between Monsters of this class & varieties. **281** *1–5m, 5–7m, 14–22m/*Q **282** *1–3m, 24–25m* **284** *1–2m, 11–12m, 13–14m, 13–21m, 22–24m* **285** *20–24m/*Q **286** *1–20m, 26–30m* **287** *9–14m, 18–20m/*Q *22–24m, 26–28m, 28–31m/28–29u↔, 29–33m* **288** *3–6m, 15–18m, 30–33m (Serres)* **289** *7–11m, 29–30m* **293** *21–26m* **294** *8–15m, 30–31m* **299** *1–2m* **305** *16–18m* **306** *3–6m, 13–18m/16–22w* I do not agree *19–28m* **307** *1–7m, 25–27m (Schreber)* **311** *7–8m* **315** *17–19m, 23–25m* **316** *32–33m* **317** *20–28m* **318** *11–14md, 20–23md* **319** *18–19m* **320** *11–14m* **324** *7–9m, 10–12m, 20–23m* **525** *3–5m, 15–17m* **326** *13–15m* **328** *23–26m, 31–34m* **334** *29–30m* **335** *3–4m, 12–14m* **337** *wt* Bay horses Goats Pigs Cows *1–3m/?* **328** *1–6m, 12–14m* **344** *6–11m/7u "caractères | maladies", 28–32m/20u "était | mâle"* **347** *17–24m* **392** *15–20m* **400** *4–6m, 11–16m* **404** *27–29m, 30–32m (Meckel), wb* X outer reversement not so explained **405** *2–9m/4–6??, 24–26m/24–25u "c'est | uterine"* **408** *19–22m/20u "cils | sourcils"* **409** *23–24m* **410** *17–20m, 21u "de l'irritation", 22–24m, 27–28m/w* shows how common. **411** *12–14m/?/13u "bouc", 15–16m, 28–30m* **413** *27–30m/29u "combien | situation"* **414** *5–8m, 16–21m* **415** *11–14m, 15–18m, 21–23m, 25–26m* **416** *25–27m* **417** *1m* **418** *8–9m, 13–25m/w* This wd go to show that any part which has changed much will tend to change more. *16–18m/*Q **420** *13–17m, 23–32m* **421** *4–16m, 24–31m* **429** *12–14m/w* bears out embryological view *29–31m* **430** *12–15m* **431** *2–3m* **434** *17–20m/18–19u "le | mâchoire", 22–25m/25–26u "de | surnuméraires", 27–30m, 33u "la transposition"* **435** *1–5m* **436** *26–29m/27–28u "fréquemment"* **437** *1–6m, 11–13m, 19–23m* **439** *8–10m, 31–32m* **440** *18–23m* **441** *24–25m (Serres), 32–33m* **445** *11–19m, 15–16m* **447** *23–25m* **450** *18–26m* **452** *8–9m, 13–15m (Breschet)* **453** *16–18m, 26–27m* **456** *20–21m* **459** *wt/1–4w* X there have been endless remarks such as this; but they appear vague, considering what endless diversity the whole series of animals must present. *5–7m/x* **462** *3–6m* **467** *1–2m* **470** *11–13m* **473** *23–25m* **478** *3–4m, 14–15m* **479** *19–21m* **480** *1–2m, 9–10m, 26–28m* **483** *16–17m, 20–21m* **484** *1–33w/wb* Q Avoiding term of "development excentrique" I ought to say that variation parts, as trunks & branches of arteries & nerves, depend in some degree upon which are first developed in embryo, the first being most constant. *13–16m, 22–25m* **485** *1–33w/wt* No case of hereditariness in any of these varieties, but then hard to discover how seldom father & son dissected. *11–12m, 16–17m, 27–29m* **496** *5m, 8–11m* **508** *4–7m* **509** *1–3m, 13–15m, 17–18m* **515** *24–26m* **527** *2–5m* **528** *5–8m* **531** *10–13m, 18–21m* **532** *1–5m, 12–15m, 22–25m* **536** *17–22m, 29–33m*✎ **537** *25–30m, 31u*✎ *"affinité | soi", 32m/*→✎ **538** *17–22m, 19–21m* **540** *22–25m/*Q *24–32m, wb* This perhaps may bear on some organ single in some animal & double in another.– V. Cuvier Anat: Comp: *wb* see next Page **541** *3–4u "ordinairement médiane", 16–25m/17–18*Q *32m (Martin)* **542** *3–7m/5u "médiane"/9m/1–9w/wt* some other cases of monstrosities have been given in Man & Mammifers **544** *24–26m* **545** *25–26m/*Q **546** *12–15m/*Q **548** *25–26m* **549** *1–3m* **550** *19–24m, 30–32m (Dr La Roche)* **552** *10–15m/3–15w* See what Müller says on this Theory *31–33m* **553** *1–5m, 15m, 17–26m, 32–33m* **557** *29–32m* **558** *1–9m* **561** *24–30m* **564** *1–3m, 3–5m* **565** *3–7m* **579** *1–2m, 11–15m* **580** *18–21m, 26–31m* **581** *23–26m* **582** *3–6m/5u "bien | poissons"* **583** *1m, 21–25m, 27–28m, 29–33m/30u "nés | portée"* **588** *26–29m* **589** *24–30m*

599 *6–8m* **601** *15–17m, 28–33m* **603** *1–2m* **604** *4–8m, 11–14m* **605** *14–18m* **606** *14–18m, 29–31m* **607** *24–26m/w*♦ This is hereditary Dict: Med: Sci: *wb* This tendency to monstrosities by arrest of development, is perhaps allied to "avitism".– No, sporting back of hybrids, where germ affected shows no connection with arrest of variation **610** *6–8m* **613** *1–3m, 4–5m, 7m* **614** *1–2m* **622** *7–11m, 13–16m, 22–26m* **623** *1–2m, 5–6m* **624** *8–13m* **630** *14–17m/16–17u*↔ **631** *5–7m, 18–20m, 22–23m* **632** *1–2m, 3–6m, 13–14m* **634** *1–2m/1u*↔ **635** *13–27m (Meckel)/18–20*Q *21u "cuisse|pied", 32–33m* **636** *1–3m, 8–15m, 29–32m* **637** *11–14m, 28–31m* **638** *1–9m, 27–28m* **641** *25–27m (E. Rousseau)* **642** *17–22m, 25–27m* **643** *17–24m* **644** *5–9m (Otto), 10–13m, 22–27m* **645** *13–16m/14u "au|plupart", 26–29m* **648** *6–7m, 20–21m, 28–31m* **649** *14–16m* **650** *1–3m, 1–6m, 9m, 11–13m, 28–29m* **651** *10–14m* **655** *11–12m* **656** *27–30m* **657** *1–5m, 28–30m* **658** *1–4m, 26–28m (Borel, Danz)* **659** *1–8m, 22–24m, 28–29m (Gavard, Soemmerring), 29u "chez|nègre"* **660** *3–6m, 12–17m, 26–29m* **662** *7–11m, 12–13m, 15a "général"* of homologous organs varying *16–17m, 32–33m* **665** *8–9m, 10–12m, 14–17m, 22–25m* **666** *12–13m, 16–20m, 24–26m* **667** *2–6m, 13–18m, 27–29m* **668** *1m, 5–7m, 13m* **669** *10–13m* **670** *1–3m, 3–9m* **671** *8–13m, 16–19m* **672** *17–19m* **673** *4–5m*✎, *16–19m, 20w* Another *21–22x*✎, *22m, 23–26m* **674** *2–4m, 26–27m/x*✎ **675** *24–28m* **676** *22–23m, 24–25m* **677** *7–8m/8u "rudiment", 10u "orteils|arrondi", 13–14u*↔, *17–18m/18u "que|fille", 33–35m (Béchet)* **678** *1–13w* inheritance of diminished fingers *3–6m, 4u "leurs|incomplètement", 10–11m, 10u "étaient rudimentaires"/11u "Le père", 12–13m, 16u "de moignon"/w* rudiment in the father *22u "réduits"/21–22w* in granddaughter *26–29m/26u "par diminution"/28u "par augmentation"* **681** *17w* to 702 **682** *3–6m, 4–5m, 11–14m, 13m* **683** *13–15m/3–29w* How often have light monstrosities accompanied grave ones. *30–33m* **684** *3–10m*✎, *12–13m/x*✎*/u "le chien"* **685** *wt* x✏ quite regular so is to be counted 17–18m/x✎ **686** *30–31m* **687** *3–4m, 9–11m, 13–15m* **688** *26–28m/x*✎ **689** *1–2m/x*✎, *8–10m/x*✎, *10u "trois doigts", 18–19m*✎*/19u*✎ *"cinq", 20–22m, 31–33m/x*✎ *(F. Cuvier), 32–33u*↔ **690** *6u "deux", 7x*✎*/u "cheval", 13–15m, 17–22m, 18–22m*✎ **692** *10–11m, 19–22m/x*✎, *25–32m/w* rudimentary organ variable *30–31u "presque|terre"* **693** *1–2m, 3–4x*✎, *6–8m/x*✎, *10–11m* **694** *1–2w* two thumbs *2–7m, 9–10x*✎, *23–24m, 28–29x*✎, *33m (Bechstein)* **695** *6–8m, 15–16x*✎ **696** *14–18m, 20–21m* **697** *13–15m* **699** *20–24m* **700** *8–10m, 14–15w* grandchildren *20u "quatrième génération", 23–26m, 28–29m, 30–31m* **701** *1–2m/x*✎, *3–4m, 13u*↔, *14–16m* **702** *1u "poils", 5–6m* **706** *17m* **710** *16–22m, 24–25m, 29–31m/w* yet no abortive parts **711** *2–3m, 9–12m, 14u "même d'hommes", 16u "M. Percy", 25u "se développe", 28u*↔, *32–34m, wb* Consult for Cows **712** *11–15m* **716** *7–9m, 26–28m* **717** *20u "des oiseaux", 23u "oiseaux"/!?, 31–33m* **718** *8–10m* **719** *23–25m* **721** *3–5m* **722** *18–21m, 22–23m* **729** *12–15m (Jussieu), 30m* **730** *10–12m* **731** *14–18m, 7–10m/9u "rudimentaire"* **736** *3–4m, 13–16m* **737** *8–12m, 13–17m (Martin Saint Ange)*

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284 – on some double monsters breeding, opposed to their sterility but then it is the one perfect which breeds 377 fertile generally.
350 domestic animals, like man, have numerous variations in veins
352 monsters occur differently in number & head in different species – a trunk specially common in Ele♦ Pigs.– 355 in wild animals very few monstrosities – there is evident relation between monsters & varieties
392. organs or parts later formed, always must be affected by causes producing monstrosities. Quote Andral – on first formed

least monstrous – (shows most monstrosities do not come on very early)
402 on coexistence of monstrosities, without any evident relation of parts.
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406. distinction between arrest of development & of formation
437 Q cases of monstrosities in man resembling Lower animals resulting from permanence of embryonic condition
448 – intimate parallelism between the embryonic, zoological & teratological series.
456 again insists on law of number varying in part when numerous, & being in itself variable
456 Summary on laws governing variation – generally rudiments – (hence cause does not act very early)
462 On homologous parts uniting both in monstrosities & in Nature.– Do not some account for this by division of cells at some period of growth??
479 on germs being originally monstrous
499 arguments for monstrosities being produced late & 500 Read, 503 See Ray Catalogue).– 506,7
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347 – throws over imagination having any effect on nature of monstrosity. 392. Q
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604 on parallel series in zoology
609 good instances, showing how easily final causes may be falsely invented.
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p592 p.597 p.602 p.604 p.606 p.608

89 *7–9m, 18–20u "restent | grêles", 24u "elles | même", 29m* **90** *1–3m* **111** *8–14m/x, 25–26m, wb* the perfect union of the two adjoining arms or legs of some of these monsters, is very striking. **134** *25–29m* **135** *6–7m, 32–33m (Serres)* **138** *4–8m* **143** *22–24m* **151** *23–27m* **172** *wt* X this, I suppose consists of two limbs united. p.157 *8–11m/9u "ce | membre"* **187** *4–5m, 25–27m (Pallas)* **246** *11–14m/5–28w* case of a perfect ♣ individual bearing another head with no trunk on it – How curious this new course of the arteries *12–14m/u±, 21u "n'avoir | aucune"* **257** *9–12m, 29–31m/?* **261** *14–17m/17u↔/12–26w* because the jaw is generally only developed in these parasites – good instance of this Law of "soi pour soi" *wb* V.p.285 where this is discussed. X N.B I dont see why if a jaw, considered as an amorphous mass, be considered as an individual – why not an additional finger shd not? He wd answer because as additional finger makes asymmetrical part of the perfect individual:– yet why not law of "soi pour soi" put this finger in proper place – improbable **264** *1–12m, 20–21m/21u "mais | oiseaux", 22–24m* **279** *24–26m, 27u "chez | grenouille"* **284** *2–3m, 4–6m, 12–14m, 16–19m, 20–22m* **285** *28–32m* **286** *15–17m, 17u↔* **321** *14–21m, 13u "des | originairement"/15u "qu'un seul"/18?/w* what *18u "épigénèse", 22–28m* **350** *4–6m/5u↔, 7–9m, 7u "ses | vaisseaux", 10–12m, 10–11u "sinon | moins"* **351** *19m, 20u "3,000 naissances"* **352** *21–23m/22u±* **353** *3–5m, 7–11m/x/*Q *17–20m, 22–24m, 29m* **354** *1–3m, 8–9m, 13–15m* **355** *1–7m/2w*♦ not domesticated ? *8–14m, 20a "classes"* Mammifers & Birds *22–24m/23–24u±, 28–33m* **356** *6u "que | cerf", 7u "lièvre | taupe", 8–9u±* **359** *15–17m, 28–31m* **376** *25–27m* **377** *1–2u↔, 11–16m* **378** *9–10m, 14–17m, 25–28m, 30–32m* **379** *3–4m, 7u↔, 8u "sont | ectroméliens", 11u "donc | de", 12u "monstruosités ectroméliens", 15–20m* **391** *16–18m/w* (a) next page **392** *1–4m, 5–8m/x*✏, *7–9m, 9–10m, 17–19m, 20–22m, 25–28m, 29–30m, 31–32m (Andral)/*Q **393** *1–5m, 6–8m/w* a ♣ *9–12m, 29–30m/u↔, wb* (a) ♣ Does not this explain variability of hair-size &c &c ? Q **394** *17–20m, 22–27m, 32–33m (Serres)* **395** *1–2m, 5–6m, 7–18w* surely in embryos the heart is hear to beat very soon? V. Müller **397** *7–11m* **398** *27–31m/w* (a) (B) *wb* (B) Therefore applicable to any part, as skin, which has no central, uniting point **400** *17–20m, 24–25m* **402** *4–8m/x*✎*/"..."/*Q **403** *28–30m* **405** *1–6m/2–3u±, 7–9m, 20–21m, 22–23m, 29–30m* **406** *2–4m, 15–16m, 31–33m* **407** *2–4m, 16–18m, 22–24m* **408** *10–12m* **414** *20–23m, 24–29m* **415** *1–5m* **416** *8–9u "faite | féminin", 9–12m/10u "de | hémitéries"/w* clitoris? *13–15m, 22u "et | douteuse"/14–24m/w* pooh! a tailless animal excess of development because man has no tail!! **417** *11–16m, 19–22m* **418** *13–16m* **428** *14–19m, 21–23m, 28–30m* **433** *3–7m, 30–33m* **434** *11–16m* **435** *24–28m* **436** *13–15u "Les | supérieurs"/?, 17u↔, 18–24m/20–23*Q **437** *2–5*Q *11–17m/11u "par | queue", 15u "absence | biliaire", 22u "cloaque", 22u "la | matrice", 18–*

GEOFFROY, HIST. GEN. ANOM. VOL. III

26m/25–26u "bifurcation | pénial", 28–30m, 30–33m **438** *1–4m/1u "par | des", 5–23m/13–15?/13u "la | profonde"/14u "diverses cavités"* **439** *2–10m/5–7?, 15–20m/18–19w* pooh! *20u "chez | anoures", 21–27m* **440** *23–27m* **441** *10–11m, 15–27m/19w* pooh! **448** *21a "embryonnaires"* He means embryological *21u "les | espèces", 24–25u±/20–30w* What is this? No variation from a likeness of the parents can be strictly normal – **449** *4–5w* V. next page xxx so be cautious– *8–10w* all this he considers only analogy.– *11–13m, 16–17m, 20–26m* **450** *9–15m, 18–20m (Serres), wb* NB in case of limbless, tailless, fingerless races (& reverse) the hereditariness must come on at nearly same age (as in horns) for the early foetus has not these parts.– **451** *1–19m, wb* xxx according to the bearing of this discussion, there wd be only an analogy, between a man become fat by much eating, or large & one born ♣ fat or large; ♣ which I think is false?– **452** *5–11m* **456** *22–31w* What is Owens law? about these organs? is it that the reduction of these organs is one step in development *24–27m/Q/26u "variabilité anomale", 27–31m/30u "constante | importante"* **457** *1–4m, 5–11m/6–7u±, 9–13w* & more chance of exposure to new conditions? *14–16u "par | spinal", 15–20w* when any connection but not in so pairs *23–25m, 28–33m/32–33u↔* **458** *1–3m, 4–10m, 14–20m/18u "que | conservés", 19u "rudimentaires | formations", 27–28w* no examples *29u↔, 30–32m* **459** *1–4m/1u "avec | des"* **460** *5–17m, 29–31m* **461** *29–32m/32u "seulement"* **462** *8–9m/u "semblables | analogues", 18–20m, 21u "Loi | soi"* **463** *9–11m, 24–25m/25u "chez | composés", 26–28m, 29–31m* **464** *20–22m, 28–30m* **465** *30–33m* **479** *17–18m, 18–31m, wb* I shd think the cause must be often anterior to impregnation **499** *7–9m, 16–17m, 24–27m* **500** *wt/1–16w* Hereditary ♣ legless Dogs & Men with polydactylism show that germ can communicate such tendency *2–3m, 14–16m, 18–33w* according to this male wd have no influence in producing monstrosities *22w* see Ray Catalogue *22–24m/m, 25–27m/25u "t.xxxiv"/26–27m/27u "t. | 511", wb* Study this to see whether small deviations as long legs &c were produced – In plants we know it is from treatment of parents & out of generation – *14–16w* III **501** *1–4m, wb* I must allude to III this when I give my view of cause of deviations to parent treatment before impregnation **502** *11–13m, 14–16m, 13u "soit simples", 14–15u "atrophie | yeux", 22–26m* **503** *1–3m, 2–4u↔, 27–30m/28w* Where? **506** *26–28m* **507** *wt/1–5w* In plants it may be said gestation of seeds causes anomaly – but seeing what effect male pollen can do, I shd greatly doubt *1–9m, 11–14w* This applies to all slight deviations *12–15m, 20m, 21–22u "qui | même", 22–23m, 25–28m, 29u "de | anciens"* **510** *13–17m* **515** *1–3m, 4–17m, 21–23m/22u "ni | entièrement"* **516** *2–6m* **521** *4–7m* **522** *29–31m* **523** *4–8m, 9–14m* **524** *5–8m, 18–20m (Serres)* **526** *2–7m* **529** *25–27m* **530** *1–6m, 8–14m, 28–31m/29u "problème complétement"* **531** *1–3m/2u "cette | force"* **534** *4–6m* **541** *4–8m* **542** *11–13m, 14–17m* **543** *13–16m* **545** *13–15m, 24–27m* **547** *3–5m, 15–19m, 25–30m* **551** *24–27m, 25u "congéniaux | originels"* **592** *3–6m, 29–31m* **593** *1m, 22–27m/26–27u "que | nombre", 29u "père | soi", 32→* **594** *6u "Théorie | arrêts"* **597** *9–11m, 32–33m* **602** *19–22m (Cuvier), 29–30m, wb* X Reflect of the possibility of classification of monsters (and many other ♣ artificial things) is showing that classification may be quite independent of any theory of origin, as I suppose is implied in Natural Classification **604** *7m/u "parallélisme | séries", 12–17w* agrees with Forbes *13–18m/18–19u±, 20–24m, 30–32m* **605** *12–13m* **606** *3–4m/3u "cette | que"* **608** *7–8md/wt♦/1–15w♦* rather attributes species to monstrous births than to small changes. *28–29m, 28u "profondeur", 29u "espèces animales", 7x→* **609** *23–24←X, 13–15m, 22u "encore | intelligence", 24u "qu'ils | la", 26u "ne | que"* **613** *13m* **614** *19m, 28m, 32m, 37m* **615** *3m, 9m* **618** *5m* **Catalogue, 1** *11–12w* Read Skimmed♦ through

GEOFFROY SAINT HILAIRE, Isidore
Histoire naturelle générale des règnes organiques
3 vols; Paris; Victor Masson; 1854–62 [CUL]
br, ex, f, gd, geo, h, he, hy, ig, in, is, sl, sp, sx, sy, v, wd

vol. 1 NB Read
SB ❑β
♦ 4; 10; 14; 431; a miserable Book – all words, words, words
Abstact Feb. 58
5 Dog not mentioned in Genesis
14 Goats with pendant ears

4 *14–15m* **5** *20–21m* **10** *4–7m* **11** *20–24m* **12** *1–3m, 4–8m* **14** *22–24m, 25–29m* **431** *10–14m, 21–22m, 24–27m*

vol. 2 NB On Man 167 to 260
SB ❑β
On extinction I have too much overlooked subsidence of isld like St Helena &c volcanic outburst &c &c
vol 2

185 ✍ Rank of Man ✏ Man
♦ How are teeth in Sirenidae – yes they have but not very ample ♣ naked? Man Elephant
♦ 216; 243✍ Man✍; 287; 304; 311 to; I apply races only to domestic productions
♦ 383 to 438 History of Believers in modification Say that I shall notice only the m conspic writers – when I began I had no idea of rest of catalogue
♦ p.431 – to p.438 Isidores own argument that species change.
♦✍ 441; 448; 474, 476; 482, 485,
☞✎ 488 ✍ → Reference about White Ants important for me; 498 – Must include sexes Explain that I use his race in particular man

185 *2–13m (Linnaeus)* **213** *24–26m* **216** *1–7m, 9–11m/8–14w* variation & sexual difference going together *17–19m/17u "lion-marin", 25u "cravate|gau"/21–26m/w* I thought some sexual differences in Monkeys?? vide my Notes.– *27–28m, 30–31m, wb* How in young Nylgaus V. Andrew Smith *wb* Mem. Eyebrows Paget's fact.– **217** *2–5m, 6–11m* **243** *1–7m, 18–20m* **244** *13–18m* **287** *1–2m, 22–23m* **304** *29–30m* **311** *14–20m/w* yet very slight differences even if inherited wd hardly be called Races – **312** *11–15m (Kant)* **321** *15–18m* **326** *22–24m/23–24u±* **328** *18–22m* **329** *1–4m* **333** *7–8m* **337** *wt* (a) not really known under nature, because inheritance not thus ascertained = sub-species or species *1–3m, 6–8m/w* (a) does for species *9–15m* **347** *23–25m* **383** *6–8m (Buffon)* **386** *4–9m (Buffon)* **387** *6–10m, 12–15m* **388** *2–6m (Buffon)* **390** *13–21m (Buffon)* **393** *9–12m, 13–14m/w* this will do for variation **394** *7–10m* **396** *18–23w* a collection of individuals which perpetuate ♣ themselves for considerable periods ♣ & which are sufficiently unlike other forms to deserve in the opinion of Naturalists a name○ So with varieties Add found in state of nature. **399** *2u "Daubenton", 5–9m* **402** *16–18m* **405** *15–17m, 16u "1801|1803", 19u "1809"* **406** *27–29m (Goethe), 27u "était|partisan"* **408** *6u "besoins", 7–9m, 26–29m (Lamarck)* **416** *11–14m/w* No change now **418** *25–27m* **423** *11–12m (Cuvier)* **431** *5–6m* **432** *20–23m* **437** *16–19m/w* not distinguished from race **441** *15–16w* Definition of species **448** *8–9m/8–12w* This refers to alternate generation & larvae &c &c *17–20m (Leuckart)* **465** *15–17m (Meissner)* **474** *22–23m/w* sexes **476** *7–10m (Gould)/8–9w* variable? **477** *5–9m, 12–14m, 31–32m* **478** *11–15m/w* variable?? **481** *7w* Drilus *8–14m, 14–15m* **482** *26–33m (Latreille)* **483** *25–30m (Desmarest, Audouin, Milne Edwards)* **485** *wt* (a) Andrew Smith case of Birds of 2 size – Azara's case of Moloths Land-shells are all Dimorphism– *6–10m/7w* (a) *23?/u "mâles"* **488** *16–18m, 19–20m (Lespés)* **489** *1–3m* **498** *18–20m*

vol. 3 part i NB Oct 19 1860✍
I have selected ● for my 1st volume on✏ Dom✏ animals✏ – Must be all gone over again & Indexed Especially for Hybridisation very good.–
Cats hybrids p.177 Used

22 *9–20m* **23** *26–29m* **27** *18–22m (Dareste), 29–31m* **28** *25m, 26–27m* **29** *26–29m* **34** *3–5m* **45** *18–19m/u "Tels|soie"/w* silk-worms artificially fed & well domesticated *25m* **46** *9–13m, 20–22m (Aristotle)* **47** *24–25m, 28–30m (P. Julien), 28u "quarante|siècles"* **48** *7–8m, 13–15m* **49** *12–15m/13w* no selection **50** *8–10m, 11–13m* **51** *2u "dix|oiseaux"* **52** *7w* Colour in mimicry *8–10m/w* colour & size in Turkeys *20–22m* **55** *2–3w* Swan not varied **56** *20–22m (Varro)* **57** *10–14m, 32–33m* **58** *10–12m, 19–21m (Pictet)* **59** *10–13m/w* Guinea Fowl not much variation **60** *4–6m, 13–15w* Peacock no variation *21–23m (Aristotle)* **61** *28–29m (Pucherau)* **62** *7–9m/8u "Zend-avesta", 13–14m/m, 21–23m (Link), 22–23m (Pictet), 33u↔* **63** *28–30m (Aristotle)* **65** *17–19m/17–24w* Chinese swans not known form not perfectly **67** *20–21w* Llamas **69** *21–26m (Albert Geoffroy, Linnaeus)* **72** *6–8m/w* Guinea Pig Origin unknown **73** *9–15/w* Ferrets probably Polecat **75** *1–3m/w* Rabbit not in Greece or Italy *13–14w* originally Spanish *24–27m/29u "îles|Baléares"/25–30w* rabbits in France & Spain before our era **77** *18–19m* **78** *8–10m* **79** *23–25m (Hamilton Smith), 31–33m (Fitzinger)* **82** *wt/1–3w* Savages may reclaim animals Caffres nato Oxen – Dogs – Pacific Ocean Ascension Dogs – Pampas Indian take to Horses so readily *7–10m, 13–16u±* **83** *4–9m (Dureau de la Malle)/7–8w* N.Q. *10–12m* **84** *9–12m/*Q **85** *1–4m, 20–24m (Fitzinger)* **86** *12–16m* **87** *1–4m (Pallas, Güldenstädt)/2–3*Q **88** *13–15m* **91** *10–13m, 15–23m (Pictet) wb* Why shd not name of conquering races become modified & transferred **95** *29–32m (Joly, Pictet)/31u±* **96** *2–3m* **97** *20–23m/w* Blyth **98** *3–8m* **99** *1–10m, 2u "Cretzschmar"* **100** *31–33m (Link)/w* Dog *w*✍ All Q *18–21m* **102** *1m/u "une|oreilles"* **103** *7–9m/w* How about spots over eyes **106** *6–13m* **107** *18–30m (Pliny), 35–37m/*Q **108** *3u "tel|Tilesius", 6u "chiens|africains", 7–9m/9u "Ehrenberg et Hemprich", 15–19m, 25u "kaukasischen Schakals", 27–29m (Güldenstädt)* **109** *8–9m/8u "Rueppel", 9u "C. simensis", 10–14m/w* like Greyhound **110** *33–*

GEOFFROY, RÈGNES ORGANIQUES
35m (Broca) **111** *29–32m* **112** *1–4m, 6–9m (Bellingeri), 14–16m, 22–30m (Cuvier)* **113** *2–6m (Flourens), 14–17m* **114** *1–2m* **115** *19–23m/*Q **121** *29–30m/w* too few recent **123** *6–8w* Rabbit Coney Bird *7m, 12–13m, 27u "en | transitions"/w* Only Habit **154** *15–19m* **155** *16–20m (Aristotle, Pallas), 27–29m (Dryander)* **157** *15m/u "L'hybridité | tétras", 21–22m* **158** *8–9m/8u "dindon | faisan", 15–16u↔* **159** *6–8m, 11–12m* **160** *12–13m* **161** *3–4m/??/w* see ♣ pp163 *4u "surtout | bouc", 19–21m* **162** *9–12m* **163** *4–5m* **164** *7–8m* **165** *2m, 13m* **167** *19–21m, 25m* **168** *2–3m, 18–20m* **169** *29u "menstruation"* **171** *32–34m (Hunter), 33u "Wolf | are"/w* Dogs **172** *10–12m, 13m, 14–15m/w* Dogs **173** *1m/!, 14–15m* **175** *35–36m/36u "baudet | sans"* **176** *16–18m* **177** *18–19m/*Q, 21–22m **179** *21–24m, 29–31m/w* Pheasants **180** *1–4m, 7–9*Q *9–14m/11–13w* Pigeons crossed *25m*✎ *(Dureau), 29–30m*✎ **181** *5–13m* **182** *9–13m (Gloger)* **197** *7–9m* **199** *6–9w* same rules hold in individuals *12–15w* ♣ The rule holds with squirrels *17–18m* **200** *18–23m* **203** *7–9m* **204** *4–8m* **206** *13–19m* **207** *1–3m, 6–8m* **211** *24–26m (Broca)/w* see p.222 **216** *22–26m/w* Dogs & Wolves *28–30m (Buffon)* **217** *1–3w* Q under Dog *4–5m (Flourens), 13–18m (Flourens), 27–29m/w* Chacal & Dog *30–31m (Duvernoy), 31–34w* Q under Dog **218** *2–8m, 16–17u↔* **219** *1m, 13–14m, 20m, 25–27m (Francisco de Therau)* **220** *9–10u↔, 24–29m (Weddell, Denis)* **221** *19–21m* **222** *1–2u↔, 18–19u±, 27–31m* **223** *1–2m, 4u "trois | eux", 5–8m, 9–10m, 19–21m (Broca), 24–26m, 28–32m (Rouy)* **225** *1–4m, 18–20m, 28–30m* **226** *3–9m* **227** *21–23m (Lecoq)* **228** *17–20m, 21–23m* **229** *4–8m, 10–13m, 23–27m* **234** *6–8m* **254** *12–28m/13–15*Q*/u "1784" 16u "sur | jaune", 18–20w* selection *27–28w¢¢* **259** *12–18m/14w* atavism *27–32m (Roulin)* **260** *1–7m (Cantal)* **261** *9–12m*

vol. 3 part ii SB1 ❐ℜ
322; 328; 336 to 377; 402; 407,409; 427; 434; 438; 41; 446; 450; 461; 469; 472; 476,8; 482; 498; 507; 529
SB2 ❑β
✍ 330 Falcons or Hawks caught at long distance from home.
→✐ ✍ Variability of species in state of Nature
✐ (Not abstracted)
✍ 402 changes in naturalised Helix ✏ – May bear on Madeira & P. Santo peculiar species –

322 *3–12m* **323** *⇑1→* **324** *⇑2–1m* **328** *5–12m* **330** *9–17m* **332** *1–6m* **333** *1–2m, 7–10m* **335** *1–5m* **336** *⇑3–1m* **337** *6–12m* **338** *16–21m* **340** *12–17m* **342** *⇑19–9m* **345** *⇑15–11m* **347** *⇑14–11m, ⇑9–6m* **348** *2–8m* **350** *1–7m, 13–19m, 20–25m* **351** *1–3m, ⇑13–7m* **354** *⇑8–1m* **357** *⇑11–6m* **359** *18–21m* **360** *6–12m, ⇑10–5m* **365** *10m, ⇑3m* **370** *⇑18–16m, ⇑8–1m* **373** *9–13m* **376** *⇑19–14m* **377** *10–15m, ⇑5–1m* **402** *⇑17–10m* **403** *wt* Is this allied to Madeira or Porto Santo close species *7–15m* **407** *6–15m* **409** *10–20m* **427** *1–5m/w* But how kn parent *⇑12–9m/→, ⇑3–1m* **434** *⇑3–1m* **435** *4–6m, ⇑12–6m, ⇑1u "1834"* **438** *⇑7–2m/*Q✍ **441** *12–21m* **446** *10–15m/m, ⇑2–1m* **447** *16–18m* **448** *tab.w* six times as long – tail not included *wb¢¢* **449** *⇑13–7m* **450** *⇑15–10m, ⇑9–4m, ⇑3–1m/m*✍ **451** *5–9m/m, 18–21m, ⇑3–1m/→*✍ **453** *1–6m/3–6m, 14–22m* **455** *5–8m, ⇑8–1m/m* **461** *⇑3–1m/⇑1u* **469** *⇑8–3m* **472** *17–20m* **476** *⇑7–3m/*Q✍ **478** *⇑6–2m* **479** *1–4m* **482** *12–14m/w* Cart-Horse & Race Horse **498** *12–15m* **507** *8–13m* **529** *3–17m*

GEOFFROY SAINT-HILAIRE, Isidore *Vie, travaux et doctrine scientifique d'Étienne Geoffroy Saint-Hilaire* Paris; P. Bertrand; 1847 [CUL]
ad, af, beh, em, geo, ig, mn, rd, sp, tm, v, wd

NB1 p.69; p.121; p.134; p.139; p.157; p.212 to p.218; p.229; p.238; p.245; p.258; p.281; 291,4,7; to 312; 332 336 to 357– Omalius d'Halloy on changes in species
NB2 Read 428; ? 454 Book G
SB ❑β
135 all organs, are same modified &c
139 never a new organ, with respect to Electrical organs
213 Relative position & mutual dependence, more important than forms or functions in ascertaining homologies – "Un organ est plutot aneanti que transpose" – (small changes)
214 Law of Balancement, quote Goethe – attributes Rudimentary organs to Balancement
229 Teeth in Birds, 238
291 monstrosities made by shaking eggs &c
294 Meckel in 1812 proved that monstrosities were arrested embryonic states
298 On affinity of same part in Monsters the same 302 in Monsters, & in normal states
337 It wd seem that Geoffroy has not propounded change of Species No p.345
347 Local conditions only causes of change
350 "Leur monde ambiant"
353 "It is problem for future"

1 *16u "1772"* **69** *10–12m* **121** *26–28m* **134** *21–28m* **135** *11–12m* **139** *16–18m/?, 21–29m* **157** *6–10m* **212** *9–11m/1–11w* in ascertaining homologies *12u*↔ **213** *wt* (a) because small changes will not transport *3–4m, 7–8m/w* (a) *28m* **214** *14–16m/!/16u "affinités électives", 24–25m* **215** *1–8m, 12–13m/??/u*↔ **218** *3–7m* **229** *15–17m* **238** *6–8m, 25–28m* **245** *1–2m (Savigny), 24m* **258** *13–18m* **259** *1–3m/1?/2u "différences | est"* **281** *13–15m, 14u "subordination | caractères"* **290** *18–24m/21–22u "surtout | verticale", 24–25m* **291** *12–22m* **294** *6–16m (Meckel)* **297** *20–24m* **298** *14–21m* **299** *11–15m* **301** *15–20m (M. Serres)* **302** *3–5m/w* (a) *24–26m, wb* (a) if true parts gradually brought near wd become confluent.– **312** *8–11m* **332** *16–20m* **336** *7–12m/7w* Cuvier **337** *wt* (a) apparently, this refers to theory of change of Species *2–7m/3w* (a) **338**·*13–15m/w* see Catalogue at end **339** *22–26m* **341** *18–19m, 22–23m, 24–27m* **345** *1–2m, 16–17m/w* Mutability of species. *20u "1828", 24–25md, 27–28m* **347** *1–4m, 9–12m* **348** *16–20m (Lamarck)/19u "regret", 21–22u "prêter | même"* **350** *wt* (a) Compulsory changes of condition & habits, as in domesticated animals. *6–12m/9u*✍ *"monde ambiant"/8w* (a) *16–18m* **351** *8–11m* **352** *12–13u±, 13–15m/14u "Lamarck"/15u "des limites", 23–24m* **353** *6–9m/9u "ou | encore", 10–12m* **354** *6–8m, 8m, 16–18m, 27–29m* **355** *2–5m, 13u "d'un | nouveau", 15–17m/16u "où | eux"* **357** *2–4m, 26–28m* **423** *33–39m/?* **427** *27–38m* **428** *1–40m* **429** *1–2m, 20–21m/w* not much I shd think **454** *29m, 31m*

GÉRARD, R. *La Fleur et le diagramme des Orchidées* Paris; Faculté de Médicine; 1879 [Down, I]

GERLAND, Georg *Über das Aussterben der Naturvölker* Leipzig; Friedrich Fleischer; 1868 [CUL, S]
beh, cc, ex, f, h, he, oo, pat, sl, sx, ud, v, y

NB Left off p.124♦ ♣ 136
NB2 ✍ On Man alone
♦ p37; 56; 89; 122, 3, 4
SB ⟨*8 sides; not CD*⟩
1 Introduction – List of dying out Races Includes all cases from whatever cause – no special account of causes
2nd Receptiveness of savage races for miasmal illnesses, which arise spontaneously on the meeting of savage & civilized races
This first gives a great number of accounts of spontaneous illnesses. & of the greater ravages of moderately hurtful European illnesses – His theory to account for this – is not that there is some noxious influence emanating from the civilized races
2 caused by their being shut up in ships etc – but that we are all innoculated, as it were, from our earliest childhood with the germs of all kinds of infectious disorders – but that we partly by inheritance & partly by use are able to possess these germs in a latent state – These same germs being quite able to infect savage races. He gives in proof of this – that certain illness seem only to appear at certain intervals – that the
3 innoculation only lasts a certain number of years & then wears out when we are again liable to the attack of this epidemic (I suppose under certain conditions is understood – H.E.D.)
⟨*expanding on "latent state"*⟩ because we have assimilated their nature to ours & so they are not wholly inimical to us.
4 3 Directly brought in diseases The same principle applies to directly brought in infectious & contagious diseases The first introduction was the most violent but they continued to rage furiously –
The worst of all the smallpox It broke out in Mexico 1520 brought by a slaver – raged then carried to Antilles where it raged amongst the natives without killing one European –
Waiz says Smallpox has killed more than near ♣ drinking together in America. at least 1/2 perhaps 2/3rd of the Population.
5 According to Meinecke smallpox broke out spontaneously in New Holland
We now come to the original illnesses of ♣ savage races An illness raged in New Zealand before Cook – but illnesses are rare –
A gall fever raged in Central America every 100 years (4) Treatment of ♣ Illness in Savage Races All dangerous illnesses are made worse thro' mistreatment
6 In America steambaths with cold washing directly after nearly always killed the patients. In Australia they only exorcise evil spirits whom they suppose the cause of all illness – They pretend to draw a bit of stone out of them. They kill the bewitcher & rub the bewitched with his suet. Or to bleed away the Magic They are cleverer in outside injuries & serpent bites –
They are buried before they are dead in Feejee so that they mayn't bother the living. In the New Hebrides they kill delirious patients so that
7 they mayn't infect others – In Melanesian it is all taken for work of demons, tho' they practise bloodletting & such means– ♣
In Polynesia the sick are not cared for. In

Mukuhiva they hold the nose & the mouth of the sick to ♣ keep the ♣ spirit or life firm. only in New Zealand they know better how to manage – They used hot springs, light food, & rubbing of the limbs – In Tahiti they hold it wicked to take Medicine – but they
8 are clever surgeons The Mexicans are acquainted with Medicines– but put more faith in magic.– The drawing out of the stone found in Haiti & Brazil as well as Australia. The Botokuda in Sth Am. alone use natural means Steambaths all over America Real Doctors & magic doctors The Hottentots consider it all as the work of evil spirits – & they & in the Antilles draw out the stone (or here bone) as in Australia In America & Africa they punish unsuccessful doctors

SA *⟨pp. 52–53⟩* ❑β; ✍ *⟨4 sheets⟩*
2 ◆✏
Ch VIII p48 infertility of woman only cause of dying out.– intermarriage in Botokudos – general misery & hard work of women – Lactation – &c &c –
Killing children *⟨u✏⟩* Knisteno kills female Children to save them being brought up to misery – Pooh –
⟨u✏⟩ Guianas kill 1/2 children of both sexes – [In Upper Paraguays kill all children but own according Azara, *⟨u✏⟩* hence race almost disappearing] p51
[Abipones save – not more than 2 children *⟨u✏⟩* – Indians do not speak of child murder –
[Darish says women p.53 kill ♣ children *✎ to save their beauty: also in Upper Paraguay Azara *⟨u✏⟩* says p.51. – Proof of Indian women valuing their own beauty.]
Many other cases of infanticide.–
[p.54 in Melanesia only bring up 2 or 3 children] & many other islands of Pacific much infanticide – especially Tahiti – | | ✏ some women had killed 4, 6, 8, or so ♣ children
✏ p57 Infanticide in Sandwich Isd
1 Austerben – Gerland – 1868
Great extinction of many races –
p.8 Poeppig "poisonous breath of civilisation"
||✎ p.10. Williams says healthy ships, bring disease, & not infectious disease – ●✎
||✎ s.12 If an Indian tribe is once reduced in number, generally becomes extinct – Tschudi in N. & S. America found this to be the case – In N. America some exceptions.– *⟨u✏⟩*
Ch. 2.–
Known diseases introduced. Especially small-pox in America – & in all parts of

world.–
Ch. 3
|✏ *✎ Children suffer in health in p.27. Proportion of women to men in Australia according to Grey 1 : 3 – others says as 2 : 3 – female infanticide practised. *⟨u✏⟩*
Women little food – long Lactation –
Many causes against health, & so we can understand why numbers of each tribe not great & no increase, but as he says does not explain actual decrease.
✏ Galton too unsettled to work
⟨over⟩
Sexual selection
Tattooing. about being so ugly.
3 Sexual selection
||✏/*✎ Arevi kill (Tahiti) all female children: Tahiti kill in order to keep *⟨u✏⟩* beauty.– Wonderful amt of infanticide. in whole Pacific. Laziness one of main causes of infanticide – particularly kill girls – old custom – Thinks religious motive –
||✎ p.82 Natural physical conditions do not destroy races, viz T. del Fuego & Esquimaux.
Sense of Justice very strong in Savages – shown even by Revenge – Depression of Spirit causes extinction.
Mutual wars – infanticide – Unfruitfulness & long Lactation – diseases brought by Europea – drink &c Depression – Dissolut life –
Tribe when once reduced seldom revives again
Famine.– Unhealthy life – Hostile ♣ appearance of Whites most hurtful of all – Psychical effects most important – Introduced diseases – When several causes so act effect marked – ♣ Savage races are not increasing, so always must be much ♣ extermination going on, & a little addition from ♣ advent of Whites, turns the balance
4 Sandwich Isld Population not decreasing Said to be increasing in Tahiti. Tonga not decreased Feejie Keep up.–

⟨The following passages are annotated with literal translation and/or close paraphrase of the text⟩ **1** *(title)* **3** *12–20, 25–43* **4** *19–29* **5** *13–22, 32–41* **6** *wt, 3–8, 11–27, 37–44* **7** *wt, 2–4, 6–14, 25–36, 39–45, wb* **8** *8–14, 27–42* **9** *10–44* **10** *wt, 1–23, 27–45, wb* **11** *wt, 1–20, 7–19, 25–40* **12** *wt, 1–17, 20–30, 30–45, wb* **13** *wt, 1–8, 3–14, 13–19, 18–40, 19–23, 26–39, 41–45* **14** *wt, 1–17, 1–17, 16–22, 21–41, 38–43, wb* **15** *wt, 1–16, 18–22, 25–29, 31–40* **16** *wt, 1–15* **17** *11–20* **18** *12–20, 24–27, 33–45, wb* **19** *wt, 4–8, 22–27, 30–36, 40–45* **20** *5–15, 18–22, 25–33, 35–40* **21**

5–11, 14–29, 26–35, 32–34, 37–42 **22** *1–5, 11–13, 15–24, 31–45* **23** *2–5, 8–17, 19–24, 29–34, 35–43, 39–42* **24** *7–16, 21–24, 28–29, 31–40* **25** *3–16, 4–11, 16–18, 25–27, 29–34, 40–45* **26** *wt, 8–12, 16–21, 31–45* **27** *15–20, 22–31, 36–45* **28** *wt, 3–8, 14–18, 36–45* **29** *1–5, 14–18, 21–23, 25–29, 31–43, wb* **30** *wt, 4–8, 11–22, 25–28* **31** *wt, 3–8, 10–24, 20–33, 31–38* **32** *11–26, 39–45* **33** *3–8, 17–30, 32–45, wb* **34** *wt, 2–3, 8–45, wb* **35** *1–4, 6–24, 28–39, 45–49* **136** *1–5, 9–14, 18–35, 36–40, wb* **37** *wt, 1–2, 10–45, wb* **38** *wt, 5–17, 24–25, wb* **39** *wt* **48** *wt, 4–20, 22–43, 32–38* **49** *4–8, 10–15, 17–19, 29–45, wb* **50** *1–12, 14–18, 24–38, 36–45, 40–45, wb* **51** *2–13, 3–5, 15–26, 18–31, 28–45, wb* **52** *3–19, 21–39, 27–29, 43–44, wb* **53** *1–4, 8–14, 15–17, 18–24, 25–36, 27–43, wb* **54** *wt, 2–4, 8–15, 23–30, 35–45, wb* **55** *wt, 3–17, 19–21, 24–45* **56** *wt, 3–4, 6–13, 14–21, 23–34, 39–45* **57** *wt, 8–13, 15–27, 29–32, 34–45, wb* **58** *wt, 5–23, 26–33, 41–45, wb* **59** *wt, 1–7, 11–26, 29–37, 38–43, wb* **60** *wt, 1–10, 11–20, 21–23, 25–31, 33–45, 40–45, 41–45* **61** *wt, 6–15* **79** *wt, 1–29* **80** *wt* **81** *13–14, 28–39* **82** *wt, 1–6, 10–24, 26–31, 40–43* **83** *7–11, 14–33, 23–42, 35–45, wb* **84** *wt, 1–19, 10–17, 20–23, 21–26, 30–32, 34–41* **85** *6–45* **86** *wt, 14–22, 25–35, wb* **87** *2–45, 28–45, wb* **88** *1–11, 18–32, 37–45, wb* **89** *wt, 1–9, 1–14, 19, 21–33, 34–39, wb* **90** *wt, 1–7, 9–13, 17–29, 30–35, 36–38, wb* **91** *wt, 1–36, 40–45, wb* **92** *wt, 4–23, 28–32, 37–45, wb* **93** *wt, 1–36* **94** *wt, 1–45, wb* **95** *wt, 1–3, 17, 19–32, 25–40, wb* **96** *wt, 16–29, 31–45* **97** *wt, 1–45, wb* **98** *wt, 1–27* **112** *wt* **115** *24–32, 36–38, wb* **116** *wt, 1–45, wb* **117** *wt, 1–45, wb* **118** *wt, 1–45, wb* **119** *wt, 3–9, 16–32, 34–45, wb* **120** *wt, 1–45, wb* **121** *wt, 1–45, wb* **122** *wt, 1–11, 12–38, wb* **123** *wt, 1–45, wb* **124** *wt, 1–18, 16–38, wb* **125** *wt, 1–43, 20–43* **126** *wt, 1–45* **127** *wt, 1–45, wb* **128** *wt, 1–45, wb* **129** *wt, 1–45, wb* **130** *wt, 1–45, wb* **131** *wt, 1–27, 4–45, wb* **132** *wt, 1–40, wb* **133** *wt, 1–34, 5–45, wb* **134** *wt, 1–16, 24–40, wb* **135** *wt, 1–14* **136** *wt, 1–45, wb* **137** *wt* **138** *wt, 1–3, 9–43* **139** *wt* **141** *27–45* **142** *wt, 3–43* **143** *wt, 1–45, 34–45, wb* **144** *wt, wb* **145** *wt, 1–9*

GERVAIS, Paul *Les trois règnes de la nature: Histoire naturelle des mammifères* vols 1 & 2; Paris; Curmer; 1854–55 [CUL]
br, ex, gd, h, hy, sl, sp, sx, t, ti, tm, v

vol. 1 NB p.282,285 Rabbits for Dom. A.
title page ✍ Tome I **60** *8–13m* **61** *4–6m/w* apparently not sexual **62** *3–5m, ⇑18–16m* **63** *fig.w* see Back X <u>2</u> rubicondus **64** *wt* Seven figures ♣ rubicond & marked with X *fig.w* (1)X comatus **67** *6–10m* **68** *⇑5–1m* **74** *1m/u "favoris", ⇑14u "barbe|descend", last fig.w* X **78** *23–24u "pygerythrus", 29u "rufo-viridis"* **79** *1u✐ "cynosurus"* **89** *⇑19–13m* **91** *18x, 24n/u "que|colore"* **102** *⇑12u✐ "boursouflures|mexillaires"* **103** *5–8m, ⇑17–15m, ⇑16–15u✐ "leur|blanche", ⇑13–12u✐↔, ⇑11–9m/⇑9u✐ "rides", ⇑8u✐ "par|même", ⇑7–4m, ⇑3u✐ "Malbrouk|Grivet"/w✐* p.78 Cercopithecus **104** *zt, 2–5m, 7–9m, top fig.w* X 6 *⇑4m/u✐ "menton|jaunâtre"* **105** *2–5m/4u "leur|rouge", 17u "G. Cuvier", 18–21m, 24u "aux|jeunes", ⇑6–4m* **106** *1u✐ "la|verdâtre", 1–2u "Dans|généralement"/w* of Hair *3–4u✐↔, 5–7m* **107** *17–18u✐ "âge|olivâtre", 19u "simulant|perruque", 20u "reste|camaie"* **108** *⇑2–1m/u↔* **110** *⇑5–2m/⇑5u "Chez|plus"/⇑4u "lesquels|une"* **119** *top fig.m/w* well-coloured M. chrysurus **120** *20–22m* **124** *last fig.w* X 3 **128** *top fig.w* X 4 *last fig.w* X 5 **150** *10–15m*

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279 *14u "doigts", 15u "de dernière", 16u "de|dix", 19–20u "six|supérieures", 21–22u "cinq|inférieures", ⇑6–5u "que|noir", ⇑5u "noire|dessus", ⇑4u "sont|avec"* **280** *3u "de|oreilles"* **282** *9–25m/w* Every part of Europe has its peculiar Hair ⟨*ie Hare!*⟩ **283** *3–8m/8u "sauf|pointe", 12u "des|Russie", ⇑20–16m/⇑18u "oreille"/⇑17u "noire"* **284** *11–12u "Il|oreilles", 20u "un|noire", ⇑8u "le|noir", ⇑5u "le|noir"* **285** *10–11u "sauf|des", 15u "ses|an", 16u "sauf|oreilles", 24–25u "avec|année", 31u "Lepus brasiliensis", 33–34m, ⇑6–5u "leurs|fermés"* **286** *9–10m/10u↔, 16–20m, 24–28m, ⇑4–3m/u "conséquent|lombaires"* **287** *2–9m/u±* **288** *9–12m/10u "sans|songt", 18u "Sa|oreilles", 19–20m, ⇑22–21m, ⇑17–14m, ⇑14–12m, ⇑6–4m* **289** *4m/u "comme|Nord", 10–11u↔, 16–18m* **292** *⇑25–23m, ⇑19–15m, ⇑15–13m, ⇑11u "le|Espérance", ⇑3–1m*

vol. 2 NB p144 ancient Horses <u>Selection</u>
153 Hybrids – 2 Genera
140 Canines in Equidae absent in females
146 colour of Colli of one breed – forked stripe on shoulder of Zebra
150 vars of Ass
title page *wt* Tome 2 **52** *22–23m/23u "sont|arrière", ⇑18–15w* 6/7 *⇑3–1m/⇑2u♠/w* 5/6 **53** *"Cynhyène".w* 6/7 **55** *1–4m, ⇑10u "solitaires|bandes"* **56** *3u "réunit|individus", 11m/u "soixante|jours", ⇑23–20m, ⇑23u "Doué|naturel"/⇑21u "il|lieux"* **57** *⇑3–1m/⇑1u↔* **58** *⇑26u♠, ⇑24u "pas|séparé, ⇑15–14u "Loup|sinus"/w* C. Sinensis Sinensis *⇑4u "à|inférieures"* **59** *top fig.w* 6/6 **60** *8–11m* **61** *7–15m/w* variable in races of Man *9u "M. Nordmann", 21u "On|Chacals", ⇑13u♠, ⇑12u♠, ⇑11u "Chacal|Morée* **62** *13u "énumère|à", 23–25m/w♦* I.G. add C.

sinensis like Greyhound *27m* **63** ⇑*12u "Chien crabier"*, ⇑*7–4m* **64** *4–5m, 22m/u "bien préférable"*, ⇑*14m/u "au Chien"* **65** ⇑*17–12m/w* if one extinct species could be believed in, one might accept these doubts **66** *6–10m*/Q ⇑*24–20m*/Q/⇑*21u "que | genres"*, ⇑*20–19m/w* V. p.76 7/8 Molars ⇑*18u "six | dernière"* **67** ⇑*27–26u/"..." "Je | objection"*, ⇑*19–17u±/m*/Q ⇑*13–12u "il | domestique"*, ⇑*7u "Le | hyéroglyphes"*, ⇑*6u resté | Babyloniens"* **68** ⇑*9–5m* **69** ⇑*6–1m*, ⇑*3–1m*/Q✍ **72** *6–7m* **76** *1–4w* 7/8 ⇑*9–6w* 4/3 **87** ⇑*12–10m*, ⇑*7m*, ⇑*4m/u*♠, ⇑*3u*♠ **88** *3–5m, 8–10m* **89** *1–2m, 4–8m* **138** *17w* All used for Ch.3. on Horse **139** ⇑*16m/u "dont | rudimentaire"*, ⇑*10m/u "sorte | 6/6"* **140** *1–3m* **143** ⇑*20–10m*/Q✍ **144** ↕*w* Classical period pairs taking in breeding **145** *4–8m*, 6Q *9–12m, 13u "v.29"* **146** *12u "la | Camargue", 13u "noirâtres | poils", pl.Zebra.w* Fork of shoulder Stripe here much plainer **150** ⇑*15–9m* **151** *18u*♠ **153** *10–12m* **177** *5–7m/5u "mais | vrai"* **178** *1–5m* **183** *13–18m* **187** ⇑*22–21u "sans | souche"*, ⇑*18u "chanfrein"*, ⇑*16u "une | caractères"*, ⇑*4u "a | Afrique"* **189** *3–8m, 14u*♠, *15u*♠, ⇑*22u*♠, ⇑*20m/u "fort | Asie"*, ⇑*14–11m* **191** *2–5m, 14m/w* (1) ⇑*12–10m*, ⇑*9w*/⇑*8w*/⇑*7w*/⇑*3w*¢¢ **192** *6–10m* **236** *wt* Nothing to quote about Pigs *7–13m*, ⇑*13–10m*/⇑*11u "être | espèces"*, ⇑*8–2m* **237** *3–4m* **238** *6–9m/m*, ⇑*17–14m/m*, ⇑*8–3m* **239** *1–2m, 9–11m, 17–20m*, ⇑*6–4m*

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GIRAUD-TEULON, Alexis *Les origines de la famille* Genève, 1874 [I by author; CUL.1900]

GIRTON, Daniel *The new and complete pigeon-fancier: or, modern treatise on domestic pigeons* new edn; London, n.d. [CUL]
beh, cs, pat, sp, v, wd

NB ✍ Nothing Ap. 1857
7 *19–22m* **9** *30–34m* **10** *wb* describes the Blue Rock by the name of Stock dove **12** *32a*¢ **14** *8–19m, 22–24m* **15** *1–3m, 12–13m* **17** *10–12m, 28–30m, 34–35m* **18** *1–5m, 14–16m* **19** *13–15m, 36–38m* ***14** *1–3m, 7–9m* ***15** *23–26m/w* education ***16** *37–38m/wb* Seems to consider all the Horsemen & Dragoons crossed breeds Can this be so considering how true? ***17** *17–20m, 31–34m* ***18** *10–19m* **20** *3–8m* **22** *20–22m, 34–36m* **23** *1–4m/1u "with | long", 28u "four | length", 31u "the | Roman", 34u "table"* **24** *8–12m, 13–15m, 30–32m* **31** *5–7m* **32** *7–9m* **33** *1–3m, 4–5m, 5–6u "the | better", wb* so that for me, it is immaterial whether originally different species, as these qualities differ in each.– **34** *4–7m, 29–30m, 30–31u "much | name", 32–35m, 36–37m* **35** *12–14m* **36** *2–7m, 17–18m/u "less | thirty"/w* Varies *35u "neck | is"* **37** *19–20m, 23–25m, 33–34m* **38** *13–17m, 23m, 33–34m, wb* This & following shows that domestication has produced much effect.– **39** *24–32m* **55** *18–31m/w* a curious treatment for apoplexy **57** *15–17m, 23–27m*

GLEN, William Cunningham *Collection of Poor Law Statutes* 2nd edn; London; Shaw & Sons; 1857 [Down]
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12 *13–15m, 31u "three", 35–38m, 45–47m* **13** *10–13m/10u "two guardians", 23–27m, 31–34m, 42–45m* **14** *1–5m* **15** *1–3m, 11–14m* **17** *8–11m* **19** *22–25m* **22** *22–29m* **23** *5–26m* **25** *24–26m, 27–30m, 45–47m* **26** *1–5m, 30–33m* **27** *43–49m* **28** *4–14m/9u "but | money", 20–25m, 45–46m* **29** *30–33m, 36–38m* **32** *20–25m* **33** *1–3m* **34** *14–22m* **36** *9–15m* **46** *12–20m, 32–36m, 43–46m* **47** *5–7m, 9–14m, 21–25m, 27–32m* **48** *7–14m, 31–39m, 43–46m* **49** *1–3m, 33–38m* **50** *7–14m, 36–40m* **52** *9–12m, 24–28m* **53** *3–7m* **55** *35–41m* **57** *39–48m* **58** *26–29m* **59** *14–19m* **63** *32–38m* **64** *32–36m* **65** *26–32m* **66** *26–31m* **67** *10–14m, 42–45m* **68** *44–49m* **69** *13–16m, 18–22m* **70** *25–27m* **71** *3–7m/3w* ie under 7 years old *19–20m, 33–36m, 40–43m* **72** *5–8m, 23–25m* **73** *1–4m, 7–10m* **74** *26–28m, 32–38m* **75** *25–30m* **76** *26–32m, 34–38m* **77** *17–19m, 35–38m* **78** *14–18m, 29–31m, 44–46m* **79** *23–29m* **80** *24–27m* **81** *43–46m* **82** *18–21m, 45–46m* **83** *4–6m* **87** *20–27m, 35–44m* **88** *21–26m* **89** *24–34m, 42–45m* **90** *30–33m* **93** *32–33m, 38–39m* **95** *20–23m* **97** *43–48m* **98** *20–25m* **99** *28–30m, 40–48m*

GLOGER, Constantin Lambert *Das Abändern der Vögel durch Einfluss des Klima's* Breslau; August Schulz & Co.; 1833 [CUL, on B]
br, cc, fg, gd, he, ig, no, pat, rd, sp, spo, sy, ta, tm, ts, v, wd, y

NB Only skimmed very poor Book all Assertion
Graba's Ornith Voyage Feroe
p42; p.44; p69; p.74, 75; 89; 98; 103; 113; 138; 140
SB1 ❒ℜ
23 tints of plumage vary with Climate
69 Nillsson on variation of Beak in Tetrao saliceti Q
70 many short-tailed birds have 1 or 2 pairs of extra-caudal. (as Kingfisher) can this be compensation or rudimentary. (allude when I talk of important♦ organs being few & not variable.–)

69 References to Bruch's papers (I have read)
74 on changes of Ducks wings & feet, tamed & Geese according <u>Bruch</u>
103 on spreading of sparrows with cultivation in Russia
143 corvus of Faroe & C. cornix
Appendix systematics at end on doubtful species
157 on Tetrao saliceti & scoticus being same species <u>Q</u>
SB2 722. on variability of Head & Beak
Brehm made some of his species from single specimens & dry specimens.
722 Colymbus 18 or 20 tail feathers
731 Beak & length of ♣ prom◗ in Anser segetum variable – so it is with domestic geese
733 tail feathers increase in number in Colymbus with age
✍ Is Anser segetum supposed part of domestic goose.–
<u>Bruch in Isis 1828 Band XXI</u>
do Isis 1829 Band XXII
p.629 Caudals increase with age. variable in Anser segetum – 16–20!
p.152 on the Sparrow Ch 4

xv *17m/w*♦ Begin **xxxi** *3m* **2** ↕*w/wt* Defines "Ausartung" – a deformity, as white or cross-billed sparrow, not hereditary – not affecting <u>all individuals</u> under any circumstances – not exact relation to true characters [this not true as all deformities have such relations]– "Abanderung" – is, as a Spanish sparrow, where change is superinduced from climate on <u>previous</u> organization, & affects all; & young inherit it, & gradation into <u>common</u> character can be <u>traced</u>. Alpine plants wd have Abanderung yet not <u>hereditary</u> Monsters are hereditary Vague distinction *wb* All <u>sports</u> wd be Ausartungs – In Abanderungs the change will ♣ I shd think, supervene by effect produced on mature animal during generation.– **3** *wt* 1. Variety directly dependent on external influence 2. Variety indirectly so dependent & directly on propagating system. ↕*m/w* P.S. I think the upshot of his distinction, is whether the change be produced, at early period through propagating system being affected, or whether, during one or more generations, the mature being is affected & altered. **5** ⇑*3u "wirklichen"*, ⇑*1wτ, wb* <u>true</u> & imagined, <u>true</u> & false, <u>constant</u> & changeable skull-differences **15** *6m/1–17w* it appears that warm countries affect colours like age. *33–38m/w* late arriving XX *wb* XX Quails from hot south country with red throats. **21** *2x* **22** *20–25m/w* Nut-hatch more blue in warmer countries **23** *wt* X I might say according to Gloger plumage varies little according to climate *wt* Green seldom brighter in hot countries–x *1–3m, 22x* **24** *5–11m/w* legs & beaks in difft climates vary in colour **25** *19m* **27** *28m* **28** *21–29m, 7–34w* About 1/5 of Kolreuter's white-variegated in Faro!? & yet these do not pair together **29** *3–7m, 4u "Schwandrorsel (Amsel)"/1–7w* This Bird in Italy has in first month white bar over tail *8–29m, 29–30m* **42** *14–17m/w* thinks same species **44** *10–33w* Nillson does not think Tyrol have same as Northern **69** *20m (Bruch)/w* V. Read *26u "Varietät durch"/w* Whistling Duck *29–31m/w* Bruch good See to this *34u "Pfeifenten"/34–39w* Nillson says out of 30, Beaks differ in all <u>Q</u> *31m/39m/wb* Both Read **70** *13u "gar | mehr"/7–13w* many <u>short-tailed</u> birds have a pair of extra tail-feathers. *17wτ, 20u/? "14 oder 13", 17–25w* 3 out of 12 had 14 or 13 tail-feathers instead of 12 Kingfishers in Dictionary. **74** *18m/u "etwas | Flügel"/17–20w* Goose shorter wings what compared with?! *27m/w* Duck *31–34m/32–33u "dass | langt"/33–34u "fast | erreicht"* **75** *1–2u "Füsse | aber", 3u "schwimmt | geworden", 7u "plumperen"* **76** *24–25m/w* Isis **89** *15–25m/8–24w* Nillson – Tree sparrow in N. is found about houses in greater numbers, than common sparr **98** *14–20m/1–23w* all cuckoos eggs in different years differ **103** *24–30m/w* spreading of sparrows **113** *41m* **117** *4–5*Q **138** *16–34w* number of deaf & dumb vary extremely in diff parts of Prussia **140** *31–33m* **141** *14–16m* **143** *25–28m* **152** *3–22m* **157** *33–37m/33u/wτ/33–35*Q

GODMAN, Frederick du Cane *Natural history of the Azores, or Western Islands* London; John Van Voorst; 1870 [CUL] ℘
mg, ti, tm, v

NB Variation – p19
Dentition Summary on
Birds – 330
– Coleoptera – 335
Immigration of Birds – 337
Upper Miocene – 338
⊂⊃ formed in full size at close of Glacial Period – ⬬ 340
⊂⊃ Wandering of Insects & Birds – 341

19 *26–33m, 32–34m* **20** *9–12m, 18–21m, 30–34m* **25** *23–27m* **43** *23–27m* **330** *3–18m* **331** *4–21m* **335** *1–7m, 19–24m* **337** *25–29m* **338** *1–14w* They seem much more modern than Madeira **340** *29–33m* **341** *5–27m*

GODRON, Dominique Alexandre *De l'espèce et des races dans les êtres organisés et spécialement de l'unité de l'espèce humaine* 2 vols.; Paris; J.B. Baillière et Fils; 1859 [CUL] ad, beh, br, cc, ch, cs, ex, f, fg, gd, geo, h, he, hy, ig, in, mg, no, or, sl, sp, sy, t, ta, ti, tm, ts, v, wd, y

vol. 1 SB1
p10 – History of Believers in Mutation
19; 30 to 58 to to 260
◆ no marks
341; 346 to end of volume
✍ Book of Gervais referred to. on Zoologies
⟨*over*⟩ p10 History of ♣ Believers of Mutation
SB2 ☐β; ✍
<u>Godron sur l'Espece</u> ✏ All abstracted for my 1st vol. separately.–
Vol I
36 change in range of Sparrow
77 on naturalised plants from hotter countries becoming extinct – one good case of plant naturalised, yet not getting seed – like Ivy under nature
90 curious special adaptation to particular localities in plants p.95
120 & 124 Batrachian Ranunculus 2 kinds of Leaves,– means of transition to pre-Glacial Ranunculus
134 Puerile to quote Pompeian & Aegyptian remains, as nothing in antiquity
148 cases of seeds long buried coming up
160 case of ♣ ancient variety of Mercurialis
168 on the facility with which Aegilops triticoides is produced
181 Hybrids of Partridge – p.183 cases of copulation of distinct molluscs so no repugnance under nature p.196 Hybrid Pheasants
195 ⟨*he means 193*⟩ Antiquity of Common Mule in Bible
247 references about Hybrid – Papers
249 Fertility of Hybrids p250
✏ 391 No stripe on Black Ass

title page *1u/6u* ⟨*author, title*⟩ **10** *1u "Fries"/ 1–2m/w* Believes in Mutability **19** *4–7m* **30** *3–7m* **34** *8–9m* **36** *6–15m* **37** *7–9m* **38** *11–16m* **39** *15–22m/w* Fish same in different kinds of Water *28m/ 28m/*→✍ **40** *2–6m* **41** *17–22m* **43** *1–7m* **44** *20–23m* **46** *19–26m/w* These are not natural acclimatisations **47** *5–8m/w* acclimat **48** *9m, 22–24m* **58** *1–2m, 12–15m/w* like Peloria; what does Ruta belong to? *27–30w* analogous variations **61** *1–5m/w* several analogous facts before & after this. **64** *3–5m/w* variable in genus *10–15m/w* var. in individual. *21u "une|monstrosité", 31–35m* **65** *6–7m, 15m* **67** *6–11w* Cases of plants with wider ranges identical.– *12–18w* Alph D.C. of course gives infinitely many cases **77** *8–15m, 20–24m/w* this is like such cases as Ivy naturally ranging where cannot fruit **78** *24–27m/w* not really changes **85** *17–23m/w* I think other characters of Alpine plants *17–23m/18w* on mountains **90** *1–5m, 13–20m* **95** *5–15m/w* shows how ignorant we are **118** *4–8m, 19–28m* **120** *10–14m/w* Mentions 2 organs **121** *12–15m/w* analogous variations **124** *16–22m/17–18w* 2 forms **125** *27–28m* **127** *6–10m* **134** *19–24m/18–29w* nothing whatever compared to geological facts puerile to quote them. **148** *19–22m* **149** *11–19m* **154** *14–19m* **160** *wt* Did he observe its origin *1–4m, 4–8w* Has it spread or increased?? *21–24m, 22–25m, 25–26m (Marchant)* **161** *5–9m, 15–17m* **168** *22–26m* **169** *3–6m, 21–26m, 30–31*→ **170** *16–23m/w* shows how much crossing *27–29*→ **171** *2–7m, 31m* **172** *7–18m* **173** *31*→ **174** *4–11m* **179** *wt* This wd be very good argument if we did not meet such difficulty in well-known countries *2–7m/5w* (a) *11–16m* **181** *17–24m* **183** *1–3m* **193** *7–8m, 9–11m* **196** *5–14m* **238** *2–9m* **239** *2–18m* **247** *24–25m, 26–27m* **249** *23–27m* **250** *3–6m* **251** *12–13m* **252** *11–17m* **260** *15–27m* **261** *1–12m* **336** *16–18w*✍ All used about dog **341** *12–15m* **342** *4–7m, 18–27m/21–22u "l'arcade|arquée"*/Q **346** *19–22m* **348** *7–11m* **352** *1–5m* **355** *5–10m, 17–18m* **357** *wt*✍ All used about dog *8w* All used Cats **358** *23–24m* **359** *16–18m* **362** *6–8m* **363** *4–6m, 8–10m, 12–13m, 27m (Cuvier), 28m (Gervais), 29–30m/*Q **364** *8–10*Q✍ **365** *26m/26–30w*✍ All quoted except antiquity of certain Breeds **367** *16–19m* **368** *3–9m, 24–26m (Cuvier)* **369** *17–20m, 29m* **370** *1–5m, 9–23w* give summary of facts for arguments – gradation of domestic race – fertility crossing when tamed, & character of those gone wild.– Q✍ **374** *14–20m* **375** *10–12m/?, 27–28m* **376** *1–10m/4–5*Q✍ **377** *11–13m, 28–29m* **378** *1–3m, 4a "Cheval"/9–14w* All <u>Q</u> in Ch. 3 on Horses **379** *2–9m* **382** *15–19m* **387** *17–18m* **389** *6–7w* p.391 Black Asses no stripes **391** *25–27m* **402** *15–18m, 18–27m/22–23*Q **406** *5–7m, 19–21m, 22–25m, 27–29m* **407** *6–7m* **409** *16–18m* **416** *13–19m* **441** *21–27m* **442** *2–4m, 20–24m/*Q✍, *25–26m* **443** *10–16m, 27–28m/w* Black less common *30m* **444** *5m, 25–27m* **445** *6m* **446** *11–12m, 27m* **458** *11–16m* **459** *17–21m* **460** *8–10*Q *11–13m/12u "2700", 18–20m/19u "1494"* **461** *7–10m/w* is this race *9–18m/15–17m/w* Dandolo *18–19m, 20–24m/20–23m* **462** *6–7m/6u "leur forme"/7u "bien|fournir", 8–10m, 12–16m, 25–27m/19–25w* Quatrefages (They do not stick their eggs) *29–30m* **463** *4–5m* **Catalogue ℘ back cover** *38–44m*✍ *(Boudin)*

vol. 2 NB1 Melon p.62; 95 Apricots; 84 Dahlia see Loudon Encyclop.
NB2 56 Pea
NB3 ✐ Gosse p.301
SB1 ✍
✏ 246 to 337 About Man good.
✏ 374 character of races of Man
p.300 Case of Man exaggerating natural peculiarity
p.322 argues against effect of introduced women into Harems.–
p.326 differences in chiefs of Polynesia
♦ Book p.251 Castelnau Auguste G St Hilaire
SB2 ❑β
✍ Godron vol 2. sur l'Espece
✏ Much about Man. good. [All abstracted for my 1st vol.]
✍ 98 good case of bitter almonds not being eaten by Mulots & therefore sown in Preference for wood Q✏

4 *23–24m* **6** *21–23m* **9** *22–24m, 26–27m, wb* effect of scanty milk when young – given in puppies – But is this hereditary? **22** *12–17m/w* Cresy's fact **27** *1–7m* **28** *7–15m* **30** *1–4m* **35** *30m* **40** *29–30m/w* read **43** *1–6m/2w* Zebra? **44** *2–6m/w* this is his argument everywhere *9–10w* Pouters **49** *22–25m/→* **50** *1–6m* **52** *13–19m, 25–27m* **54** *12–13m/w* Turnips & Rape ?? *24–27m* **55** *3–6m/w* B. canpestus oleifera *9u "Colza", 10u "Chou-Rutabaga", 10–14m/w* Swedish Turnip *27–28m (Metzger)* **56** *21–24m* **57** *12–18m* **58** *9–13m* **60** *13–17m, 23–26m* **63** *12–13m/X✎, 20–23m/20–29w* differs in selected part → so in cabbage it is only selected part. which differs **64** *4–8m, 11–16m/w* analogous variations in distinct species *18–20m/"..."✍, 26m, 28m✎, 30m✎* **67** *11–12m, 22m/w* selection **69** *5–8m, 12–22m* **70** *11–12m/9–17w* How are Bulbs of Hyacinth in contrast. I think they can be recognised. **71** *8m* **72** *1–5m, 7–9m, 12–17m* **73** *6–8m, 14–17m, 27–29m* **74** *13–16m, 21–24m* **75** *5–19m, 6–7m/6u✎ "exactement parallèles", 7–16w* if these all real species, still odder that not known wild *16u✎ "présente | races", 22u✎ "sont | espérances"/w* Triticums **76** *2u "Nous | patrie"/w* Rye **77** *10–12m, 18–25m* **78** *15–16w* 3 Hordeum *19–20w* 2 Oats *wb* 5 Triticum + 1 Rye + 3 Hordeum + 2 Oats all in N temperate parts of old world.–! = 11 species + one Hordeum & common wheat apparently known in wild state **79** *9–10m, 11u "panicule | serrée", 13–14u "pourvues | d'arête", 14u "albumen", 16–17u "ne | caractères", 19–21m* **80** *21–23m, 29–31m* **81** *7–10m* **82** *18–20m, 21–22m* **84** *3–8m, 26–28m* **85** *8–12m, 20–23m, 27–29m, 30–31m* **86** *3–8m* **87** *1–3m* **88** *wt* In single flowers selectors only try for size brilliant colour & regularity of shape *wt* In Thyme I have noticed grt differn in shape of corolla & ♣ stigma *7w* ● run regular *7–9m, 8–11m, 19–20u "reproduisent | stérile", 21–25m, 22–31m* **89** *26–30m* **90** *1–3m, 26–29m* **91** *2–5m✎/3–4u "encore | aiguillons"* **93** *18–21m* **94** *23–28m* **97** *1–4m* **98** *15–18m/w* good selection **100** *13–19m* **101** *14–17m, 20–22m, 24–27m* **102** *3–5m, 13–15w✍* what a proof of powers of variability *18–21m/w* but so it wd be in France & England. **103** *14–17m, 18–22m, 23–25m* **106** *3–10m, 16–19m, 21–25m* **107** *1–9m, 12–13m* **216** *10–14w* Form of shin & heel of Negro *16–32m/→, 18–21w* could not be produced by Selection *25–32w* Different amount of Beards before mentioned – views of Huc's **217** *1–11m/9–11x✎/w* Conditions with colour **246** *16–18m* **247** *5–8m, 10–11w* Migration *12–15m* **248** *9–11m, 12–14m, 18–19m, 22–24m, 23–28m, 25–27m* **249** *9–13m/1–18w* These American facts diversity of very good to show not climate – We simply do not know *15–20m* **250** *1–5m, 8–12m (Humboldt)* **253** *11–14m/w* like sexual selection **254** *19–21m/w* Migration good to show race **255** *3–6m/w* this looks like sexual selection **261** *3–8m* **263** *13m* **265** *2–6md* **266** *2–6m* **268** *wt* This agrees with poorness of colour of productions of Galapagos & Patagonia – But then how in Chiloe? & Tierra del Fuego *3–8m* **269** *3–10m/w* Compare tropical Africa & America – Tasmania **275** *3–6m* **276** *1–5m, 13–18m, 19–21m/20u "mais | toujours", 28–31m* **277** *wt* my notion of correlation & darkness of skin not applicable to Tasmanians for healthy climate, migration– *3–11m/5w* (a) *24–27m* **278** *8–12m, 16–22m* **279** *10–11m* **280** *1–2m* **282** *22–25m* **283** *4–8m* **285** *8–9m, 22–23m, 25–28m* **288** *7–13m* **289** *10–19m* **297** *1–6m* **299** *6–27m/9u "deux"/13u "incisives"/15u "phalange | doigt"/11–15w* mutilations not hereditary Q **300** *5–7m, 7–8u "ce | naturelle", 9u "laideur"/w* no **301** *18–25m, 27–28m/22–30w/wb* This wd be good to show Man exaggerates peculiarities **302** *27–30m/?* **308** *8–9m/8u "poitrine", 11–14m, 15–21m* **311** *1–6m* **313** *1–9m, 18u "que | climat"/18–21w* but how vague *20–25w* p308 *wb* It may be said if conditions of life can do something, why not make Pouter & fantail, but we see no corresponding difference & we cannot believe this it seems incredible to me – especially in case of pigeons, & this other agency which is a real agency I have shown selection suffices for **322** *13–20m* **324** *17–28m* **326** *15–25m* **327** *22–27m* **333** *15–*

21m **334** *1–4m/w* Jews **336** *17–21m* **337** *12u "genre"/9–16m/w* food & exercise *17–21m/w* intellect, vistas & happiness **374** *19–24m* **375** *12–15m*

GONNE, Christian Friedrich *Das Gleichgewicht in der Bewegung* Dresden; R.V. Zahn; 1882 [Down] ℘

GOOCH, Robert *On some of the most important diseases peculiar to women* London; The New Sydenham Society; 1859 [Down]

GOODSIR, John, and GOODSIR, Harry *Anatomical and pathological observations* Edinburgh; Miles MacPhail; 1845 [Down] ℘

THE GOOSEBERRY GROWERS' REGISTER for the year 1862 C. Leicester; Macclesfield [CUL]
v

NB 192 London; Dwts; Pennyweight; 210 Hamp.O; All ♣ these named gooseberry won Prizes the one year winner?
205 *wb* 38 **206** *wb* 35 **207** *wb* 44 **208** *wb* 36 **209** *wb* 34 **210** *4m, wb* 39 **211** *wb* 17 *wb¢¢*
243 kinds

GOSSE, Philip Henry *Letters from Alabama, chiefly related to natural history* London; Morgan & Chase; 1859 [CUL]
beh, gd, oo, pat, v, wd

NF *⟨list of synonyms and antonyms⟩*
NB 106; 146; 161; 191 odd flower; Moths sucking Melons 229; 280 Mules; Beaver fur 300
SB ✍
p106 Partridges laying in Hens nest
146 Aegeria with appearance & manner of flight like wasp
161 Picus eating fruit passionately
229 Moths sucking wounded Water-melons
106 *2–14m, 28–35m* **146** *4–15m* **161** *9–16m* **190** *22–24m* **191** *2–5m* **229** *24–29m* **280** *8–15m* **300** *3–8m*

GOSSE, Philip Henry *A naturalist's sojourn in Jamaica* London; Longman, Brown, Green & Longmans; 1851 [CUL, S]
ab, gd

NB p.91 Enquire; 339; 340; 386 Pigs✍; 418✍; 430X; 442, 3; 447; 469; Singing 168
♦ Wool of Sheep – Colour of Cows – Sea-Horse rabbit
SB ❑β
339 The Alco – or Mexican Mopsy, white woolly var. wd. only associate with another Dog of its own Breed – becomes passionately attached to single individual Q✍
340 Feral Dog of E. Haiti different from St Domingo of Col. Smith; thought to be an aboriginal S. American feral Dog Q
386 Feral Hogs of Jamaica Q
429. Haiti tradition of Frogs brought by shower – alludes to Moreau case
431 Frogs imported & spread in several W. Indian islds
441 Rabbit feral Q but not common – Slate-coloured Q✍
447 European Ferret rendered useless from their inability to overcome Chigoe infestment Q
469 On the indigenous Capromys of W. Indian islds.–

91 ⇑*13–10m* **331** *2–3m, 6u "absolutely mute", 11–20m/ 11u "Alco"/ 12u "from Mexico", 19–22m, 21–22u "a|eye"* **332** *7u "Mexican Mopsy"* **335** *14u "Agnara|Surinam", 28–30m*/Q **338** *28–32m* **339** *2–5m* **340** *24–27m, 29–32m/29u "Dog|Haiti"*/Q *30–31u "Feral|Domingo"* **386** *5–7m, 15–20m*/Q **389** *1–2m*/Q *9–11m, 19–20u "well-toothed"* **428** *3–9m* **429** *19–22m, 24–27m/ 26u "bull-heads"* **430** *9–12m, 23–28m, 31–33m* **441** *27–29m*/Q **442** *4–8m, 7u "deeply"*/Q **443** *6–10m* **447** *4–9m* **469** *21–28m, 31m*
catalogue ℘

GÖTZ, Theodor *Hunde-Galerie* 2nd edn; Weimar; Eduard Lobe; 1853 [Down]

GOULD, Benjamin Apthorp *Investigations in the military and anthropological statistics of American soldiers* New York; Hurd & Houghton; 1869 [CUL]
cc, f, gd, h, he, phy, tm, v, y

NB All for Man Chapter
93; 107; 115; 116; 126; 131; 132; 134 Height; 207 Colour of Hair; 256 length of legs – not rank; 288 do in Sailors; negro 298; do – arms 301; do foot 302; Pelvis of Indian 310; do 316; Inferior vitality of Mulattoes – 319; Summary of eyes 359; Size of head 371; Size of Lungs Negros 471; Pilosity of Negros Q 569♦
SB ❑β; ➼
x✎ p93 Different stature of men of W. Virginia & New Jersey
x✎ 107 115 growth longer continued
x✎ ♦ 126 Causes of statures xp.136 do.
x✎ 134 sailors stunted
[Even so simple an affair as stature depends on concealed conditions.– Yet a direct nature for transplanted infants affected]
✐ (Military Statistics)

➾ 206 colour of Hair & Eyes, seems effect of conditions
♦ 256 Length of legs in white soldiers, the most variable element in stature
♦ 288 Sailors in comparison with soldiers have longer legs & shorter arms, in a degree entirely disproportionate to difference in height
♦ 289 Neck greater.– chart – waist & hips small.– 290 instep thicker.– Direct action.–
298 in Blacks distance from tip of finger to patella differs much from Whites
301 Blacks – Length of Humerus
302 do great length of foot ⟨*u*✎⟩
310 Red men very long arms – palms very broad
316 Table of Summaries
317 Length of two sections of arms
319 Summary in words on differences of races ✏ less Vitality of Mulattoes
358 Better Summary
371 Size of head varies with stature, not in same proportions
471 different capacity of Lungs in Black & Whites ⟨*u*✎⟩
569 No difference in pilosity between Black & White but this is the U. States.–
[U. States Sanitary Commission]

91 *27–34m/w* p109 & 111 p115 *36–40m* **93** *13–22m* **107** *8–13m, 35–36m* **111** *11–21m* **115** *9–15m* **116** *3–8m* **125** *4–8m* **126** *5–11m, 16–18m* **127** *4–5m, 6–8m* **131** *5–7m, 11–15m, 18m* **132** *3u "agency | influence", 12–16m, 31–33m* **134** *12–14m* **206** ⇑*18–1m* **207** *4–16m* **256** ⇑*5–1m* **288** *5–11m, wb* These cases not known to be inherited **289** *5–7m/ 5u "girth"/6u "3"/7u "breadth | hips", 24m/*→ **290** *21–25m* **298** *25–30w* ie distance from tip of finger to patella *32–33w* see p. 253 **299** *1–5m* **301** *16–18m/ 17w*♦, *26u "fore-arm"/w*♦✍ humerus *30–32m* **302** *13–15m* **310** *6–8m, 19–22m, 32–35m* **316** *2w* Summary Table **317** *7–15m* **319** *12–13m/w* Mulattoes *24–28m* **359** *4–9m, 14u/w*⊄ **371** *12–19m* **471** *10m, 15–18m* **569** *9–10m/w* Pilosity *12–16m* **620** ⇑*15m* **640** *wb* 9

GOULD, John *Handbook to the birds of Australia* 2 vols.; London; by the author; 1865 [CUL]
beh, br, ds, f, sl, sp, sx, sy, t, tm, ud, v, y

NB 145 variation in nests
SB ♦
97 female larger & brighter Gould ✎ Vol I
118 Merops Young
124 Dacelo Y & sexes
130 Halcyon Y
135 – good case Kingfisher with sexes curiously different – young male like female
136 sexes with different .. Kingfisher
Kingfishers
140 Y
How are young in species in which tail differs in colour. & ring-neck.
[When adult obscure 2 like I think young always alike] no
Sexual Selection
145 Y; 168; 177; 181
193 Y complex changes; 196; 200 sexes
210 males conspicuous & shy Q
213 2nd year males assume plumage; 215 Y; 249
256 sexes & Y
260 sexes alike young different; 266 do
277; 278✍ N✐
300 Menura visits same mounds
310 tail & nest of Menura
⟨*over*⟩
317 N✐ Nest dome – yet female obscure – strongly against Wallace ✍ Splendid Birds during Breeding Season
(I have erased recently all marks I must look over volumes.)
[I may put the case that many Birds which differ sexually build domed nests.– & many which do not differ & are not brilliant also build such nests.]–
395 female less than half size of male Q ✔✎
419 castanotis
442 Bower Bird – Give figure to 461
457 Beauty causing shyness Q
471 Corcorax displaying himself to utmost advantage ✔✎
(It wd be well to look apropos of nest, whether many of Honey-suckers are bright –
597 peculiar noise made by wings by males ✔✎
602 female never beautiful
[In same genus with sexes alike, & young either like or unlike adults.?]
All about Sexual Selection

94 *21–25m* **97** *1–6m* **99** *12–15m* **118** *21–22m, 32u "this | deep"* **119** *2u "black | blue"* **124** *10–15m* **125** *12–15m* **130** *8–11m* **134** *5–10m, 15–17m/w* very fertile *31–35m* **135** *6–9m* **136** *26–34m* **137** *22–25m* **140** *7–11m, 19–21m, 30–32m* **145** *15–17m, 30–35m* **162** *3–7md* **168** *13–15m* **169** *24–28m* **181** *8–9m, 16–18m, 18–19m, 33m* **182** *13–15m* **193** *20–21m/20u "brown", 22–26m/25–27u±, 28–30m* **196** *3–8m/3u "throat | back"/4u "jet-black"/7u "uniform | head", 20–21u "throat | grey"* **197** *10–11m* **200** *21u "Camphegae | Graucali", 23u "sexes | colour"* **210** *3–7m/*Q **213** *12–14m* **214** *12–16m* **215** *28–31m*

GOULD, AUSTRALIA HANDBOOK

249 *1–2m* **256** *24–27m* **260** *8–11m/8u "sexes | alike", 8u "young"/10–14w* observe bird **266** *19–23m/w* get/observe birds **277** *1u "sexes | considerable", 17–19m* **278** *31–33m/32u "black | scarlet"* **279** *6–13w* how is rest of plumage *15–20m/w* common to both sexes whilst others differ more **280** *1–4m* **285** *9–13m* **287** *12–13m, 21–23m* **290** *22–26m* **294** *16m, 18–21m* **300** *26–29m* **301** *23–26m, 32–34m/33u "appearance | roofed"* **302** *15–18m* **303** *21–26m* **308** *8–13m, 22–23m/22u "powerful | voice", 24u "own | beautiful", 24–26m/24u±, 29u "of | grounds"* **309** *1–3m/2u "domed", 33–35m* **310** *1–3m, 30–34m* **311** *11–14m/13u "and | in"* **312** *9–11m/12u "domed | one"* **317** *wt* (a) many species all so far as known differ greatly by sex & build dome nests *6–9m/w* (a) *11–13m/12u "build dome"* **318** *19–21m, 24–27m* **319** *28–29m/28u "which | shaped"* **320** *6–18m* **323** *24–26m, 33u "dome"* **324** *18–22m* **325** *3u "dome-shaped"* **340** *5–7m/6u "opening | side"* **341** *27–29m* **358** *19–21m* **359** *26–29m* **362** *2–5m/2u "dome-shaped"* **363** *32–34m* **364** *19–20m/19u "domed"* **365** *15–17m* **374** *2–4m/3u "domed", 33–34m* **383** *4–6m, 7–9m/7u "recommended | observer", 10u "domed form"* **386** *27–28m/27u "entrance | about"* **387** *19–20m* **388** *17–19m/17u "dome-shaped nests"* **389** *3–5m* **391** *9–12m/9u "of | form", 18–19m/18u "are | similar"* **395** *16–19m/17u "which | size"* **407** *3–5m/4u "dome-shaped"* **414** *7u "Plain | finch", 16u "domed form", 19–20u "absence | female"* **418** *2–5md/3u "pendant"/6u "offer"* **419** *27–29m/u "upper | white"* **440** *24–27m* **441** *3–6m* **442** *wt* B. genera no doubt co-descended○ by some ancient bird, which acquired their strange instinct. *1–3m* **443** *23–26m/24u "differed"/25u "third larger", 30–32m, 33–35m* **444** *2–4m, 3–6u±, 5–7m, 11–12u±, 16–17u "which | males", 11–14m, 19–20m/x✎, 26–27u✐↔, 29m✎/u✐ "pick | leaf", 32u✐ "opening | the"* **445** *8u "blue-black", 11u "velvety | shining", 14–16m, 20–23m/w* Eyes *25–27m* **447** *12–15m* **448** *2–6m, 7–9m/8u "both | these", 9–12m,* 12Q *12–14u✐↔* **449** *14–18m, 16u "2 1/2 | long", 22x✎/22–23u "flying | side"/"..., 27–29m/28u "the | pink"* **451** *1–2m/2u✎ "three | in", 3u✐ "beautifully | grasses", 5–6u "bivalve | by", 10–16m, 10u✐ "stones | within"/16–17u↔/17x✎, 21u✐ "round", 23–24m/24u "formed | individuals"* **452** *16–18m* **453** *8–16m* **455** *1–2m✎/1u✎ "thick | 4", 2–3m/3u✐ "Snail | berry", 9–12m, 10x✎, 10u✎ "4 | high", 11u✐ "some | berries"* **457** *20–24m/*Q *26–27u "two | conflicts"* **458** *26–32m* **459** *25–28m* **460** *5–9m, 22–25m* **461** *2–6m, 8–11m, 21–26m* **464** *14–17m, 30–35m* **471** *10–14m* **478** *23–24m, 25–27m, 30–33m* **483** *19–21m* **486** *8–17w* generally beautiful & nest not domed, I think. **495** *11–12m* **496** *33–35m* **497** *13–17m* **502** *14–17m, 31–33m* **504** *5–7m/6u "rest | shaped"* **509** *16–17m, 30–31m* **525** *6–7m* **526** *31–32m* **527** *16u "of birds"/15–17m/w* nest open & cupped **531** *32–33m* **534** *12–15m* **535** *22–26m* **542** *21–26m* **547** *9–10m, 18–20m/18u "denuded"/19u "knob"/20u "less lanceolate"* **556** *1–6m* **562** *3u "on | shaped", 6u "in | top", 17–22w* beautiful birds *21–27m* **567** *22–25m* **573** *23–26m* **574** *15–17m* **581** *1–2m* **588** *14–15m* **597** *1–5m/3u "a hundred"* **602** *12–17m* **603** *32–33m* **604** *1–2m* **607** *1–2m* **617** *6–11m, 20u "the | brown", 30–31u "upper | rufous", 33–35m/33u "tail | white"* **625** *4–6m/w*◆ **633** *30–32m*

vol. 2 NB 538 New Zealand many ♣ anomalous Birds

6 *18–22m/19u "yellow | centre"/20u "crest"* **7** *18–22m* **10** *7–10m, 19–21m* **12** *3–4m* **14** *33–34m* **17** *33–34m/w* and white cockatoo **18** *5–16m/8–11w* Generally different **20** *6–9m, 16–19m* **22** *4–5m* **25** *4–5m, 29–31m* **28** *20–23m/20u "the plumage"* **30** *10–12m, 32–34m* **31** *27–29m* **32** *1–5m, 10–11m/u "thighs | green"/w* var **36** *22–24m, 25u✐ "the | scarlet", 33u✐ "throat | red"* **37** *3–5m* **38** *24–27m* **40** *31–32m/31u "rich | glory"* **41** *19m* **45** *34–35m* **46** *1–4m, 4–7m* **48** *32–34m* **49** *31–33m* **54** *7–11m, 24–27m* **55** *27u "beautiful bird"* **56** ↕*w* Hence It does not seem as if variation had occurred early in life, but had crawled backwards or invaded the young. & it seems whenever this happens it invades both sexes – & ceases to be limited to one sex.– ⇑*5–1m/*⇑*5w* one of the most Beautiful spec *wb* In other species of genus young very different – very beautiful. Shows not descent – from differently coloured ancestors **59** *11–14m, 33–35m* **61** *22m, 24–25m* **63** *12–14m* **66** *24–25m* **67** *20–21m* **68** *25–28m* **70** *8–10m, 32–35m* **72** *3–5m, 20–21m, 22u "band | less", 23u "conspicuous | blue", 24u "bordered | above"* **74** *15–17m* **76** *18–20m* **77** *5–6m* **78** *19–20m* **82** *14–17m* **83** *12–14m, 32–35m* **85** *15–17m* **87** *35m* **90** *35m* **92** *2–4m* **95** *19–20m* **97** *18–29m* **99** *34–35m* **101** *21–22m* **102** *32–33m* **109** *11–12m, 14–15m, 29–30m* **111** *1–2m* **112** *1–3m* **113** *28–31m* **117** *22–23m* **119** *7m* **121** *29–31m* **129** *30–31m* **132** *16–18m* **134** *12–14m* **143** *18–19m* **144** *24–26m* **147** *25–28m* **149** *12–13m* **154** *27–33m* **178** *16–20m* **180** *28–31m* **183** *4–5m* **186** *6–9m, 20–22m* **187** *19–21m* **188** *10–12m* **191** *20–23m* **200** *6–7m* **203** *6–8m* **212** *7–10m* **213** *30–31m* **215** *12–15m* **220** *8–12m* **228** *30–33m* **232** *23–25m* **234** *4–6m, 23–25m* **236** *33–35m* **255** *15–20m* **264** *19–23m* **275** *20–26m* **276** *18–22m* **283** *33–35m* **285** *28–31m* **295** *29–31m* **312**

33–35m **319** *26–28m* **329** *7–8m* **333** *24–28m* **335** *18–21m* **337** *27–32m* **351** *14–15m* **355** *27–29m* **359** *24–26m* **360** *29–32m* **362** *18–22m* **363** *31–32m* **364** *1–4m* **366** *24–26m* **373** *16–18m* **378** *15–17m* **380** *6–8m* **383** *13–17m/14–15u "this | perceptible", 21–24m, 33–34m* **384** *16–19m* **433** *zb* **491** *21–24m* **497** *15–19m* **500** *31–35m* **502** *25–28m* **503** *13–17m* **505** *20–25m* **511** *26u↔, 29–31m* **513** *6–8m* **520** *22–23m* **527** *5–8m* **530** *24–28m* **531** *13–15m/13–14u "straight | beak"* **538** *27–31m*

GOULD, John *An introduction to the birds of Australia* London; Richard & John E. Taylor; 1848 [CUL, I]
ex, gd, in, mg, oo, sp, sx, v

NB p.8
SB1 p.8 to 18; p.23; p30; 36; 51; 64; 70; 75; 82; 101; 112; 134
I have forgotten to observe the relation of range of genera & species
SB2 ❑β
10 Smooth Trees accounts for no Woodpeckers
10 Many representative Birds in Australia of those of North. (but I do not know, whether f. in intermediate region: I did ask.
15 Vars of Birds in Tasmania, migrating in one & not in other Ch. 6
23 Strix numerous in species & individuals in Australia
36 Grauculus of Tasmania
51 vars of Anthus 70 vars of Cacatua – 75 – 101
64 Law of representation in Australia chiefly holds E & W
71 Nestor of Philip Isd <u>extinct</u>
82 Megapodium 3 species <u>Q</u> or rather genera – all male keep for hatching. Description of Habits

8 *22–27m* **9** *15a/8–13wɇ ⟨not CD⟩* **10** *25–28m, 38–49m* **11** *3–5m* **15** *1–3m, 6–17m, 19m, 37–38m* **16** *1–2m* **17** *1–2m* **18** *41–43m* **23** *22–31m/1–31w* this wd look as if number of species & number of individuals were related – not so in plants **30** *12–20w* I daresay true *31–46m/w*♦ Hence in mundane genus – <u>close</u> species represent each other in different parts of same continent **36** *1–4m* **51** *41–45m/42u "extra-tropical regions"* **64** *28–36m* **70** *39–44m* **71** *13–14m, 38–40m, 42–45m* **75** *41–42m* **82** *39–42m/w* mother attends them p88 **83** *35m/u "12–13"* **84** *19–20m* **85** *5–7m*·**88** *3–7m* **89** *17–19m, 38m* **90** *46–47m* **91** *9–10m/10u "lat | South", 21–23m, 25–26m, 29–30m/29u "six feet"* **101** *17–19m* **110** *23–26m* **112** *2–6m/wt* what authority? **122** *table "Name of species".w* You may shorten name. *table "Number of Volume and Plate".w* This column nothing *⟨pp. 122–33, many entries in column headed "South-eastern Australia or N.S. Wales" marked with a cross⟩* **134** *25–30w¢¢, 34–36m*

GOULD, John *Introduction to the birds of Great Britain* London; Taylor & Francis; 1873 [CUL, I]
beh, cc, ex, fg, gd, is, mg, oo, sl, sp, tm, y

NB ♦ 23 S. Selection
SB ☞
5,7,8 On migration
7 Birds not common in parts of England where not formerly known.
11 Destruction of Birds during severe winters
13 Protection of certain species unduly increases other species
16. On slight differences of Birds of Britain & Europe & on small size of insular Birds
21. Eggs in Holes generally white; but others white as with Wood-pigeons & exposed.
22. Water-birds can swim at once; & one kind of grouse can fly almost at once.

5 *15–24m, 33–39m, 46–50m* **6** *44–49m* **7** *5–9m* **8** *1–7w* So France is not S. *14–21m/10–20w* In Ireland no *25–29m* **11** *15–20m, 31–37m, 45–49m* **13** *20–22m* **16** *1–9m, 12–22m* **17** *7–9m, 8–12m, 12–14m* **21** *19–26m* **22** *2–7m* **23** *1–8m* **42** *31–43m*

GOULD, John *An introduction to the Trochilidae, or family of humming-birds* London; Taylor & Francis; 1861 [CUL, I]
beh, cs, gd, ig, in, sp, sy, t, tm, v

NB1 All references seem here abstracted. Those not struck out, all refer to slight variations & doubtful species.– No doubt many of the doubtful species could be cleared up by more specimens.–
141♦; 146 var; 158 var; 161 var; 164 do; 167 do; 170 do; 174 do; 176; 177, 8 do do
174 tips of 4 central tail feathers, tipped with dark green
Mem vast numbers of species are known by only few spec.
would it not be worth while to quote all the cases of doubt –
State that many of the doubtful forms would be cleared up. & considered distinct, on other hand would be connected by intermediate gradation.
♦ 7; 9; 14; 18; 19; 20; 22; 52 Vars & close species.
61 var; 62 do; 67♦; 74 ♣ close species; 83 do; 86 var; 89 var; 91 var; 98 do; 102 do;

106 do; 109 do; 112 do; 116 do; 118 do; 120, 126♦ Salviae; 127 var; 129 var; 136 var; 138 var

NB2 Mr G. says ♣ he has never noticed vars; but then he admits some slight individual variations & if he find 2 forms for 2 districts ever so slightly different, they are called species.– In the same district at same time, seem to be similar variation hardly can occur; → ⟨*to NB1, 61 var*⟩

States as the Groups have been carefully monographed – & also confined to warm part of our Continent, good to consider ♣ what amount of doubtful species were offered – Then state within same region could hardly vary. on account of crossing –

SB ➾

p.7. Humming Birds very confined ranges.
8. Juan Fernandez p. 141
9. West Indies distinct species.
14, 17, 18 Great sexual differences: given exhibition of ♣ p.20 nest ornamented with feathers
♦ 22 singing & beauty not together
p.20 nest loaded with stone to make Heavy & keep level
✏ 28 pugnacity
p.35 sexual ♣ similarity
52 do ✏ females in excess
67 ✏ do female more beautiful gorget than male
75 ✏ do
120 more than 20 males to 1 female – male very gorgeous.–
✏ 49 Males Shafts of feathers expanded in male

7 *5–32w* Humming birds very num. & confined ranges *35→* **8** *30–36m* **9** *20–28m, 31–32m* **14** *37–45m* **15** *wt* Bates Butterflies when underside displayed this is beautiful *1–2m/m✐, 24–29m/24u♠/25u "pierce | bases"/28u "Bourcier | bird"* **17** *21–25m* **18** *1–10m/5u "beards", 14–19m, 19–23m, 30u "blue ear-tufts", 33u "bearded", 43–46m/44u "undertail-coverts", 49–50m/50u "from behind"* **19** *6–8m, 9–15m, 17–21m, 24–26m, 41–50m/42–44"..."/43w* of the nest *47–51c↔* **20** *1–3m, 36–43m* **22** *11–16m/1–13w* because the charm suffices Nature never extravagant *18–39w* However fighting & beauty go together p.28 **28** *46–50m/w* males? **29** *16–22m/19–20u "perceived | fastened", 23–26m* **34** *31–33m* **35** *1–3m* **46** *21–27md/ 26–28m* **49** *32u♠, 33–36m, 41u "similarlity | appearance"* **52** *19–22m, 37–42m/42–47m/18–47w* so that weapons of war might be gained even when males few **61** *12–15m* **62** *8–11m* **64** *35–40m/26–43w* Males or females more numerous? **67** *17–22m, 35–38m* **74** *25–31m* **75** *25–29m* **83** *38–43m* **89** *24–26m* **91** *37–38m* **98** *28–32m* **102** *15–16m, 21–25m, 41–44m* **103** *15–17m* **106** *26–32m* **109** *13–15m* **110** *9–10m, 13u↔, 14u "white | four", 17–20m/18u "That | sole", 23–25w* see p102 for Andes○ ● case *37–38m* **111** *4–9m/6u "attractive as may be"* **112** *29–32m, 35–39m* **113** *32–36m* **116** *5–9m* **118** *1–8m/6w* only **119** *35–38m* **120** *11–13m* **126** *11–16m* **127** *38–41m* **129** *31–34m* **136** *42–44m* **138** *40–44m* **141** *27–35m* **146** *26–29m* **158** *26–31m* **161** *7–10m, 20–22m* **164** *28–30m* **167** *15–20m* **170** *18–20m* **174** *40–42m* **176** *1–3m* **177** *16–18m, 22–23m* **178** *2–5m, 30–33m*

GOULD, William *An account of English ants* London; A. Millar; 1747 [CUL, pre-B]

2 *13w* Myrmec○

GRABA, Carl Julian *Tagebuch geführt auf einer Reise nach Färö im Jahre 1828* Hamburg; Perthes & Besser; 1830 [CUL, on B]
beh, br, gd, is, mg, sp, tm, v, wd

NB ✍
50 to 67; 62 wild Pigeon; 80; 102; 106; 118; 150; 187; 205
SB
51. The White Raven not fixed (Magillvray 3/745) Descript of – other ravens drive away, only at Faroe as pair together
56 anthers varying in measurements & tints & 67 Q
♦ 63 C. livia varies (read)
65, 80 Larus 2 spec. varies much in beak & tarsi Q
103 ♣ seldom found 2 birds of same kind of same dimensions – took great pains on 100s of specimens
107 another capital case of Uria, see to this Q (p150 another case of 2 forms breeding together)
118 Colymbus, beak & tarsi variable Q
205 there are migratory Birds in Faroe Q
The Pied Faroe Raven is analogue of Hooded Crow & Jackdaw & Magpie(?)

title page *w*♦ See about Pie-bald Raven mentioned in Macgillvry Vol. 3 end. Does Ch. Martins in Voyage to Scandinavia mention this Bird.– p70 **1** *wb*✎ Read **38** *16–23m* **50** *25–28m* **51** *16w* vol 3 p 745 of Macgillvry *17–19m, 24–25m/24u "nicht | auf"/25w* not a fixed species **52** *10u "Der | stark", 11–12m, 15u "sehr | vorne"/12–16w* agrees pretty well with Mac. *25–28m/w* exactly same as Mac *30m/u "hornweiss"* **53** *16u "die | mittlern", 20u "Schwanz", 21w* black in Mac. *23u "rein schwarz"/w* agrees *25u "Krallen | weiss", 27–30m/w* varies **54** *wt* very curious being produced only at Faroe *9–10m/w* ornithologist *10u "Viell. | Brehm"/11u "Brünnich"/w* have named it *14–17m/u "gewöhnliche | vorkommt"/w* pecking him away *20–23m/u "dass | erhält", ⇑4–2m/u "ein | Junge"* **56** *27–29m/w* measurements not here to be trusted **57** *2–4u "Mai | übrigen", 8–9m* **59** *1–3m* **62** *18–21u "das | behalten", 18–25w* Description **63** *17–26m/20w* varies *24u "eine"/ 25u "eine Andeutung"/ 25–26m, 27–28m/28u "ist | gemein"* **65** *22–27m, 29u "Knochenbildung", wb* skeleton **66** *4–7m/5–6u "die | wirken", 11–13m/w* very rash to trust to measurements on dryed skins *19–24m/w* does not trust to measurement without they are constant over *25–30m, 26u "Papageitaucher"/wb* Puffin **67** *4u♠, 7–9w* differences of 2 specimens– *22–27m/24u "1 11/12"* **80** *13–15m/14u "5 Linien"* **102** *22–30m/24–25w* Variation **103** *4–8m/7–8u "und | wären", 22–26m, 23–25u "hunderte | untersucht"* **106** *20u♠, 22–24m, 25–26u "halben | Zoll", 27u♠/*Q *wb* Faber *wb* See MacGillvry for other localities *29–30m/30u↔* **107** *1u↔/wt/1–7w* Uria ringvia var of U. troile. is certainly only a variety, though he at first doubted *8–17w* MacGillivray 5 p.328 with picture of head. Q *7–9u "einigen | Auge", 16–17u↔, 19–21m* **118** *21–22m* **146** *14u "dunkelbrauner"/10–13w* 2 other chance visitors *22–25m/w* Goldfinches arrived **150** *6–8m/*Q **187** *8–12m/9u "die Hälfte"* **202** *19m* **205** *wt* Faroes about 160 miles from Shetland & further from Iceland *7–10w* in Iceland I think many migratory Birds *11–12m/u↔/w* migratory Q

A Graduate from Cambridge *The Darwinian theory of the transmutation of species* London; James Niskett; 1867 [Down]

GRANT, Robert Edmond *Outlines of comparative anatomy* London; J.B. Baillière; 1835 [CUL]

NB *⟨back cover of each of the four parts⟩* Nothing
Part 3, Catalogue, 18 *25m* **19** *40m* **20** *6m*
supplement to Catalogue, 1 *16–17m* **3** *10–13m, 45m* **6** *25m, 29m*

GRATIOLET, Pierre *De la physionomie et des mouvements d'expression* Paris; J. Hetzel; 1865 [CUL, S]
beh, he, pat, phy, t, v

NB1 Book 14; p.311 Book; p135
NB2 p.123 Hensleigh; p137; 161; p.167 Dyspnoea; Englehart; Mouth○ B◗

title page *1u/3u ⟨author, title⟩, wb* See p436 for Lecture **7** *1–4m, 22–25m* **12** *8–10m, 15–20m, 21–25m* **14** *17–20m* **15** *4–12m, 15–17m* **17** *5–8m/w* rolling eyes **18** *15–19m/?* **19** *17–19m* **23** *15–16m, 18–20m* **24** *3–5m, 10–21m* **26** *18–23m* **35** *19–25m/22 "...* **37** *1–9m/..."* **42** *8–13m* **43** *9–12m* **47** *5–13m, 14–17m* **51** *12–15m/w* p256 p346 **52** *1–8m, 12–23m* **53** *9u "presque | regard", 10–12m/10–11u "mouvements | sensibles"/12u "tête inclinée", 13u "chairs du", 14u "flasques"* **65** *18–25m/"..."* **66** *2"..., 4–8m* **73** *3–5m* **75** *12–15m* **78** *8–13m* **79** *12–14m/w* colour changes suddenly in Turkey *21–22m, 23–25m* **81** *1–7m, 15–17m, 19–22m* **82** *5–8m, 20–23m* **83** *10–15m* **84** *8–13m* **85** *10–14m* **90** *6–7m, 24–25m* **91** *4–9m, 17–22m* **92** *6–25w* Have the capillaries muscular coats? Does Beale discuss this? (of course) *20–25m, wb* This view of nervous power merely general **94** *1–7m/1–5"..."/4w* oh *16–19m* **98** *6–10m/8w* Cats *14–16m* **99** *3–6m* **100** *15–20m/?* **101** *1–8m* **104** *21–25m* **105** *1–4m* **106** *7–10m* **113** *6–8m* **115** *5–23w* seems to say that noise of laughing & crying the same **117** *9–13m, 19–20m/?/u/wτ* **118** *9–13m/w* hence close eyes *22–25m, wb* Bell wrong on expanding chest for effort **120** *wb* retardation of circulation **121** *14–18m/5–17w* to check the circulation *19–21m* **125** *21u "bâillement"* **126** *4–9m, 13–16m* **127** *5–7m* **129** *9–11m/w* trembling at dawn of life *⇑2u "l'action | froid"* **144** *wt* to see distinctly *1–4m* **145** *1–4m* **146** *4–7m/w* tears too bright light **152** *5–8m* **155** *8–25m* **157** *4–7m* **160** *14–25m* **161** *11–19m, 23–25m* **168** *14–21m* **186** *17–25m* **187** *21–25m* **188** *1–3m/!/..."* **189** *13–24m* **206** *19–21m* **207** *wt* This is Key-stone inherited *1–2m, 4–7!* **212** *24–25m/"...* **213** *1–4m/1–5...", 16–19m* **217** *22–24m* **218** *19–24m* **221** *11–13m* **230** *4–11m* **232** *4–6m, 10–12m* **233** *8–9u "oublient | respirer", 10u "cet | qui"* **234** *11–14m* **247** *18u "excessive tourmente", 19–25m/→/wb* shortest injured limb **248** *1–5m* **250** *8–15m, 22–25m* **251** *3–7m, 20–25m* **253** *6–9m, 23–25m* **254** *4–6m, 7–9m/w* astonishment I doubt *19–24m* **255** *3–4m, fig.m/w* like Husckke **256** *8–11m* **257** *5–9m* **264** *5–12m/6–8w* Piderit *21–25m* **265** *17–20m* **268** *11–16m* **283** *wt* to 287 *10–14m, 18–23m✍/20w* do *23–25m* **284** *6–10m, 10–15m, 22–25m/w* ● *⟨about placebo effect⟩* **285** *10–19m* **286** *wt* The wish to stop crying increases it – *1–4m, 8–10m* **287** *10–11m/w* Lemon **289** *13–15m/14u "M. Chevreul"* **290** *20–25m* **311** *5–7m* **322** *13–18m* **323** *12–18m* **324** *14–18m/15m/14–18u±* **334** *6–21m/8w* opposite feelings **335** *13–15m/10–17w* anger does the same *16–21m, wb* Is it not because it has led to action see Note in Portfolio **336** *5–10m, 17–21m/21u "pousse | affreux", 24–25m, 1–25w* can pain be said to excite an animal – yes if not accompanied by fear whipping of a horse shows it – ♣ collapse soon follows *wb* (See Bell) **337** *17–25m* **338** *4–8m* **345** *18–23m* **346** *11–14m, 19–23m* **351** *wt* Antithesis to humility *1–12m* **357** *10–12m* **358** *20–24m* **359** *wt* hides his face *3–6m/w* shame *16–18m, 20m, 22–25m, wb* hiding thus is wildness & distinct from shame, which makes a blush **360** *1–3m* **362** *1–6m* **369** *15–18m* **370** *14–19m* **376** *16–25m* **378** *21–25m* **384** *24–25m* **436** *5–7m* **438** *wb* p253 Hippocrates: cannot feel pain in 2 places at once

GRAVES, George *The naturalist's companion* London; Longman, Hurst, Orme, Brown & Green; 1824 [CUL, pre-B, S Charles Darwin August 4th 1825] ℘

GRAY, Asa *Botany for young people: part 2, How plants behave* New York & Chicago; Ivison, Blakeman, Taylor & Co.; 1872 [CUL, I]
fg, mhp, oo

NB 17; 18; 34; 42; 45; 12 error
12 *21–24m/21u "is | right"* **17** *2–6m* **18** *31–33m, wb* No, because a tendril that has caught nothing coils **34** *16–23m/w* insects & pollen **37** *20–21m* **42** *5–15m* **45** *28–37m (Linnaeus)*

GRAY, Asa *Darwiniana* New York; D. Appleton & Co.; 1876 [CUL]
cs, t, v

NB1 Westminster R July 1875
NB2 357–58 Design & Purpose
Raindrops 157
Cloth 85
p338 about variations wearing out of once-crossed
iv *7–9m* **11** *4u*⊶ *"he"/w* Dana **357** *29–31m* **358** *19–33m*

GRAY, Asa *First lessons in botany and vegetable physiology* New York; G.P. Putnam & Co., and Ivison & Phinney; 1857 [CUL, I]
ct

NB 51 Sarracenia; 165 Proteine
49 *20–24m* **51** *29–38m* **120** *1–6m* **123** *14m, 25m* **127** *34u "whole | ovary", 38–40m/39u "orange | berry"* **130** *19u "Caryopsis | Grain", 23u "Indian corn", 26–29m/26u "hazelnut", 29u "in | husk"* **165** *17u "Proteine", 23u "as | lining", 25u "Protoplasm"* **210** *17m*

GRAY, Asa *Manual of the botany of the northern United States* 2nd edn; New York; 1856 [CUL]
gd, sp, sx, t, v

NB 257 Q var. of Azalea
p80 Rhamnus dimorphic clearly
◆ p123 Crataegus wrong
SB1 ❐ℜ
Asa Gray
Phanerogams *(calculations showing)* 2.6 species to genera; 134 Families
⟨line across page⟩
Introduced by Decandolle on whole U States
(calculations similar to above)
SB2 ✍ *⟨not CD; lists of species naturalised from Europe; some calculations by CD in pencil similar to above⟩*

⟨o = marks by Mr Norman identifying plants naturalised from Europe; most m/u mark "common"⟩
4 *22u* **6** *4md, 17m/u, 36m/u* **7** *5m/u, 38m/u* **8** *4m/u, 16m/u* **9** *11m/u, 13m, 28m/u, 35m/u* **10** *10o, 18o, 27o, 32o* **11** *19m/u* **12** *3m/u, 6o, 12o, 24m/u* **13** *11o* **14** *26m, 30m* **15** *18–26m/w* These remarks mean nothing **19** *36o* **21** *21m/u* **23** *4m/u, 18–19m/u* **24** *12m/u* **25** *1o, 8o, 11o, 14o, 20o, 33o, 40o* **26** *1o, 6o, 17m/u* **27** *7–8m/u* **28** *6m/u, 8o, 10o, 13o* **30** *9o, 16o, 35–36m, 36m/u, 39u* **31** *4o* **32** *31m/u, 32m* **34** *13m/u, 35m* **35** *11m, 13m* **36** *1o, 5o, 15o, 21o, 24o, 27o, 28o* **38** *16o, 20o, 36o, 39o* **39** *1o, 5o, 24o* **40** *4o* **41** *13o, 17o* **42** *24m/u* **43** *6m/u, 10m* **44** *8m/u, 13m/u, 18m/u, 24m/u, 25m, 27m, 35o, 39md* **50** *12m, 28m/u* **51** *35m/u* **52** *16m/u* **54** *28o* **55** *3o, 9o, 31o* **56** *22o, 29m/u, 31o, 35o* **57** *1o, 9o* **58** *22o, 28o* **59** *6o, 21m/u, 26m/u* **60** *4o, 9o, 23o, 31o* **61** *11o, 14o, 29o* **62** *10m, 14o, 17o, 33m/u* **63** *10o, 15o* **64** *19o, 24o* **65** *11m/u* **66** *2o, 5o, 10o, 16o, 21o* **67** *33o, 37m/u, 40o* **68** *1o* **69** *1o, 36m* **72** *9m/u, 15m/u* **73** *11o, 19o, 22o* **74** *9m/u, 13m/u, 17md* **75** *23–24m/u* **77** *35m/u, 41m/u* **78** *6m, 8m/u* **79** *3–4z, 6u "Flowers often polygamous", 41o* **80** *wt* long-style & short pedicels is more Masculine *wt* In R. catharticus *5–6m/u* **81** *40m* **83** *23o, 38m* **84** *35m* **85** *5m/u* **86** *30m/u* **87** *22m/u, 36m, 46m/u* **91** *19m/u, 33o, 38o* **92** *15o, 20o, 25o* **93** *6o, 11o, 16o, 22o, 25o, 33o, 37o* **94** *5o* **98** *2m/u* **99** *24m/u* **100** *27m/u, 30m/u, 41m/u* **101** *11m/u, 14m/u, 32m, 41m* **102** *2m/u, 17m, 42o* **103** *5o, 9o* **104** *4m* **105** *10–11m/u, 21m, 24m, 27m* **108** *28m/u, 30o, 40m/u* **109** *30m/u* **112** *11m/u, 26o, 29md, 43m/u* **113** *12m/u* **114** *3m/u* **115** *3m/u, 22o, 28o, 31o* **116** *26m/u, 30m/u, 42m/u* **117** *30m, 42m/u* **118** *13m/u, 29m, 31m* **119** *5m/u, 41m/u* **120** *2m/u, 12m/u, 28m/u* **121** *8m/u, 26m, 28m, 29m/u, 36m/u, 43m/u* **122** *30m/u, 36m/u* **123** *1o, 6o, 14–26w* NB This

was omitted by me *27o, 41m/u* **124** *7m/u, 10m, 13m, 17m, 34m* **125** *16m, 17m, 18m/u, 38m/u, 40m* **126** *2m, 4m, 8m, 33m/u* **128** *23o* **129** *5m/u* **130** *11m/u, 19m, 39m/u* **131** *8m, 9m, 10m/u, 11m, 13m/u* **132** *7m/u, 21m/u* **133** *4m/u, 31m/u* **134** *6m/u, 30m/u* **135** *6m, 7m, 8m/w* 3 **136** *24m* **137** *4m/u, 9–10m/u, 34m* **141** *2o, 18m/u* **143** *24m/u, 30m/u* **145** *42m/u* **146** *39m* **150** *30–31m/u* **151** *25m/u* **152** *1o, 8o, 30m/u, 33o, 41o* **154** *29o, 35o* **156** *1m, 8m, 11m, 23o, 28o* **157** *10m/u, 13m/u* **158** *22m/u, 26m/u, 27o, 34o* **160** *1m/u, 12m/u* **161** *14m/u, 17m/u, 28m/u, 34m/u* **164** *3m/u, 23m/u, 41m/u* **165** *22m* **166** *18m/u* **167** *22m, 24m, 34m/u, 42m/u* **168** *10m/u* **170** *9m/u, 21m, 22m, 24m/u, 29m/u, 36m, 43m/u* **171** *2m/u, 12m/u, 13o, 40u* **172** *1–2w* DD *7w* DD *8m, 21m/u, 25u, 33–34m/u/w* DD **173** *21w* DD *26m, 30m* **174** *3w* DD *4m/u* **176** *4o, 33o, 41o* **177** *3o* **185** *19m/u, 26m* **186** *25m/u* **188** *14m/u* **189** *9o, 18o* **190** *6m/u, 28m/u, 36m/u* **191** *13m* **192** *10m, 13m/u, 20m, 24m* **193** *11m/u, 17m/u, 37m, 45m/u* **194** *10m/u, 19m, 20m/u, 27u, 38m/u* **195** *11m, 27m/u, 36m/u, 38m* **196** *25m/u* **197** *6m/u* **198** *8–9m/u, 21m/u, 26m/u, 31m/u, 50m/u* **199** *5–6m/u, 26m/u, 34m/u* **201** *21m, 22m/u, 27m/u, 32m/u* **202** *18m, 28m, 33m* **204** *23m/u, 29m, 30m, 31m/u* **205** *6m/u, 12m/u, 39m/u* **206** *19m/u, 21m, 22m, 26m/u, 31m/u, 40m/u, 44m/u* **208** *1o, 5o* **210** *20m, 38m, 46m/u* **212** *14m, 15m/u* **213** *2–3m/u, 5m, 8u, 9o, 37m* **214** *16m, 17m/u* **215** *10m/u* **217** *40m, 42m/u* **218** *17m, 17m/u, 24m/u, 40m, 41m/u* **220** *45m* **222** *4m/u, 28m/u* **224** *7m/u* **225** *4o, 11o, 14o, 21o, 23o, 29o* **226** *4m/u, 5o, 8o, 15o, 22o, 29o* **227** *1o, 35m, 37o* **228** *4o, 26m/u, 30m/u* **229** *14m/u, 21m, 22m/u, 23o, 33o* **230** *6m/u* **231** *5o, 13m, 15m, 17m, 20m/u* **232** *5o, 11o, 15o, 19o, 25o, 34o* **233** *5o, 38m* **234** *4m/u, 22o, 28o, 31o, 34o, 41o* **235** *1o, 11o, 17o, 23o, 25o, 31o* **236** *3m, 19m, 27m* **237** *7m/u, 20m/u, 33m/u, 42m, 43m/u, 48m/u* **238** *6m, 8m/u, 16m/u* **239** *39m/u* **240** *22m, 24m* **241** *5m/u, 8o, 15o, 20o, 25o* **242** *17m/u, 45m/u* **244** *6m/u, 10m* **245** *5m/u* **247** *20m, 35m/u* **248** *17m/u* **249** *24m, 26m/u, 37m/u, 42m/u* **250** *2m, 5m, 7m, 9m, 26m/u* **251** *11m/u, 29m/u* **252** *44m/u* **255** *38m/u* **256** *3m, 8m, 28m* **257** *7m, 9m, 17–19m, 36m/u* **259** *34m/u, 37m, 38m, 39m* **260** *5m/u, 19m/u* **261** *10m/u, 14m/u* **262** *19m/u, 28m/u* **263** *17–18m* **264** *23m/u* **268** *21o, 36m* **269** *1o, 13m, 17m* **270** *22m* **272** *24m/u, 40m/u* **273** *4m/u, 17m/u, 25m, 26m, 28m/u, 44m/u* **274** *9o, 15o, 40m, 41m/u* **276** *8m/u* **277** *29m/u* **279** *1o, 8o, 13o, 25o* **280** *21m/u* **281** *18m/u* **283** *22o, 30o, 35o, 39o* **284** *12m/u, 14o, 20o, 26o, 29o, 35o* **285** *41m/u* **286** *38m/u* **288** *7m/u, 36m/u* **290** *23m/u, 32m/u* **291** *6m/u, 14m/u, 16o, 19m/u, 23o, 27o, 32o* **292** *39m/u* **293** *9m/u, 22m/u, 27m/u, 35m/u* **295** *42m/u* **296** *22m/u* **298** *27o, 31o, 41o* **300** *1m/u* **303** *17o, 21o, 28m* **304** *1m/u, 10m, 14m, 28o, 34o* **305** *12m* **306** *13m/u, 26o, 34o, 37o* **307** *3o, 7o, 13o, 27o, 40m* **308** *7o, 10o, 16o, 30–31m/u* **311** *31o, 40o* **312** *3o* **313** *38m/u* **315** *26m/u, 32m/u, 35o, 43o* **316** *3o, 13o, 19o, 33o* **317** *6m, 11m, 15m, 28o, 38o, 42o* **318** *1o, 12o, 15o, 17o, 22o, 26o, 34o* **319** *40o* **320** *4o, 8o, 13o, 17o, 24o* **321** *33o* **322** *1o* **324** *4m, 22o, 30o, 43o* **325** *15–16m/u, 17o, 24o, 31o, 36o* **331** *19m* **333** *23o, 28o, 40o* **334** *4o, 29o, 34o* **335** *8m/u, 40m* **336** *18o* **337** *8m, 25m/u* **340** *5m, 13m/u, 21m/u, 23o, 29o, 32o, 40o* **341** *1o, 13o, 16o, 23o* **343** *33o, 41o* **344** *3o, 9o* **345** *20m, 36m/u* **346** *36m/u* **347** *2m, 35m/u* **350** *19m/u, 28m, 29m, 30m, 31m/u* **352** *18m/u, 26–27m/u* **353** *6m/u* **354** *4m, 5m/u, 14m/u, 25m/u, 36m/u* **355** *13m/u, 35o, 43o* **356** *24o, 30o* **357** *34–35m/u* **358** *8–9m/u, 18m/u* **359** *26m/u* **361** *28–29m/u* **362** *41o* **363** *13o, 20o, 26o, 32o, 39o, 44o* **364** *9o, 17o, 21o, 25o, 29o, 35o* **365** *14m/u, 20o* **367** *14m/u, 29m, 37o* **368** *12o, 19o, 25o, 29o, 36o, 42o* **369** *3o, 16o, 22o* **370** *5m* **372** *6o, 20m/u, 24m/u, 28m/u, 35m/u, 44–45m/u* **373** *10o, 17o, 36m/u* **374** *4m/u, 5m, 9m, 22m/u, 29m/u, 41m/u* **375** *12–13m/u, 20o, 33m/u, 35o* **376** *1o, 38m/u* **377** *14m, 27o, 33o, 39o, 45o* **378** *17o* **379** *22m/u, 36m/u* **382** *4m/u* **383** *20m/u, 34m, 35m, 37m/u* **384** *18m/u, 21m, 30m* **386** *27m* **387** *6m/u, 13m/u* **388** *3o, 21m/u, 35m, 41m* **389** *2o, 17o* **390** *4m/u, 11m/u, 15m, 40m/u* **396** *2m/u, 14m/u* **397** *14m, 17m, 19m/u, 39o* **398** *19m/u, 24o, 28o* **399** *7m/u, 23m/u, 36m/u* **401** *8m/u, 34m/u, 40m/u* **402** *28m/u, 42m/u* **403** *1m, 12m/u, 19m/u* **404** *22m, 37m/u, 40m/u* **405** *1m/u, 4m, 9m* **406** *19m/?, 22m* **407** *3m/u, 12m/u, 18m/u "hybrid", 43m/u* **408** *23m/u, 39m/u* **409** *1m/u, 16m/u* **411** *12m/u* **412** *33m/u, 34m* **413** *5m/w* Omit whole genus Mr Norman **418** *38m/u* **419** *28m* **422** *2m/u, 8m/u, 15m/u, 20m/u* **423** *11m/u* **425** *21m, 22m/u, 39m/u* **427** *11m, 11m/u, 37m, 37m/u* **428** *8m/u, 48m/u* **430** *11–12m/u, 21m/u* **431** *16m/u, 20m/u* **432** *22m/u, 37m* **433** *12m/u* **434** *24m, 24m/u, 40m/u, 44m/u* **435** *1m, 14m/u, 30m/u, 31m* **436** *4m/u, 11m/u* **437** *18m* **438** *6m/u* **439** *17m/u, 18m, 20m, 21m, 22m, 23m, 31m, 31m/u, 32m, 33m, 41m/u* **441** *26m/u* **442** *1–2m/u* **444** *12m/u* **445** *18m/u, 23m/u, 30m/u, 39m/u* **446** *10m/u, 18m, 36m/u, 45m/u* **447** *37m/u, 43m/u* **448** *25m/u, 45m/u* **450** *10m/u, 37m/u* **452** *14m/u* **453** *9m/u, 20m/u* **454** *20m/u, 25m/u, 40m/u* **455** *6–7m/u* **456** *41m/u* **458** *18m/u* **459** *22m/u* **460** *15m, 17m, 20m/u* **461** *3m/u* **462** *12–13m/u, 14m* **463** *16m, 19m/u* **464** *13m/u, 19m/u, 22m* **466** *1o, 7o, 28m/u* **467** *14m/u, 22m/u, 33m/u* **468** *19o, 28o, 37o, 43o, 49o* **470** *4m, 38m/u* **471** *5m/u, 10m/u, 27m, 27m/u* **473** *43m/u* **474** *2m/u* **475** *2m/u, 25m/u* **476** *39m/u* **479**

37m/u, 39–40? **480** *8m/u, 17m/u, 32m/u* **481** *21m/u, 28–29m/u, 37m/u* **482** *11m, 25m, 27m/u* **483** *20m/u, 32m, 34m/u* **484** *28m, 29m/u* **485** *14m/u* **491** *26m, 27m/u* **492** *35m, 37m/u, 46m/u* **493** *23m/?, 35m/u* **494** *10m/u* **495** *1m/u, 16m* **496** *12m/u, 24m, 27m, 29m/u* **497** *2–3u/3m, 10m/u* **498** *7m/u, 17m* **500** *3m/u, 22m, 24m/u, 45m* **501** *24m, 26m, 28m/u* **502** *9m/u, 14m, 16m, 17m/u, 27m* **503** *18m/u, 30m* **505** *26m/u* **506** *32m/u* **507** *13w* Mr Norman omit **510** *10u* **511** *6u, 30u, 31–32m* **512** *6u, 24u* **513** *9m, 19u, 23u, 31u* **514** *28u, 30m* **515** *6m, 7m, 8m, 9m, 11m, 12m, 16u, 37u, 41u, 43u* **516** *11m, 14m/u, 27u* **517** *9m* **518** *15m, 18m/u* **519** *10m/u, 13u* **521** *31u, 46m* **522** *7u, 7m* **523** *15–16m* **524** *20m/u* **525** *34m, 36m* **526** *11u, 14–18w* Naturalised **527** *4u* **530** *14u, 31u, 43u* **531** *25u, 35u, 40u* **532** *27m, 29u* **534** *19m, 22u* **540** *4–5m/u, 8m/u, 27m/u, 41o* **541** *1o, 9m/u, 17o* **542** *4m/u* **543** *38m/u* **544** *2o, 10m, 24o, 29o, 34o* **545** *8m/u, 12m, 42m/u* **546** *4m/u, 10m/u, 15m/u, 44m/u* **547** *21m/u* **549** *3m/u* **550** *14–15m/u, 39m/u* **552** *1m/u, 11m, 15m* **553** *31m* **554** *11o, 18o, 20o, 30o, 32o, 40o* **555** *zb* **557** *15o, 22o, 34m* **558** *20m/u, 33m, 36m* **559** *16m/u, 34m/u* **560** *2m/u, 9–10m/u* **561** *14m/u* **562** *33m/u, 42o* **563** *28m/u, 33o* **564** *1o, 39m/u* **565** *4m, 10o, 21o, 41m* **566** *1m, 7o, 28o, 33o, 38o* **567** *4–5m/u, 17m/u, 25o* **568** *19m/u* **569** *3o, 7o, 11o, 29m* **570** *43m, 44m/u* **571** *5m, 24m/u, 40m/u* **572** *25m/?* **573** *18o, 24o, 30o, 33o, 41o* **574** *22o, 29o* **575** *6o, 20–21m/u* **577** *19o, 22m/u, 26o, 29m/u* **578** *10m/u, 11m, 19m/u, 34m/u* **579** *10m/u, 15m, 18–19m/u* **580** *23m/u, 34m/u, 46o* **581** *10o, 18o, 23o, 27o, 31o* **582** *23m* **583** *15m/u, 23m/u* **584** *13m/u, wb* Here Mr Norman ends

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80 *11–17m* 84 *21m*

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122 *30–33m/30–31u, 33–38m/33u/35u/36u/38–39u* **123** *9u* **125** *17u* **128** *13u* **130** *13–14u, 20–21u* **131** *3u, 7–9u* **132** *9–12m, 18–21m* **134** *22–31m* **135** *5–7m, 16u, 18u, 27u, wb* ● **136** *3–6m* **143** *32u, 34u, 36u* **386** *19–21m/20u* **413** *15–17m/15u, 26–28m, 35–36m/35u, 37–39m*

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NB ⟨*not CD*⟩
33 *30–31m, 34–35m* **42** *9–10m/9u "viele"/10u "Verbreitungsfähigkeit"* **43** *13–16m, 33–37m* **45** *11–13m, 23–25m* **50** *26–29m* **60** *35–37m* **62** *21–25m* **68** *36–37m* **83** *31–32m* **88** *32–34m* **98** *35–36m*

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cc, che, fg, ig, mhp, pat, phy, t, y

SA ⟨*pp. 52–3; 2 sheets*⟩ □β ✍
Dr Haberlandt Schutzrichtungen 1
p.23 The hypocoty of Phaseolus first geotropic & then apogeotropic do not allude to, as may be different in different plants
25 The coats of seed by rubbing roots causes bending which increases geotropic bending – compares with what Sachs says about Earth. p.26 shows by drawing what takes place. (mem diff. with Peas.
48 seedlings resist frost wonderfully
52 Winkler & Irmisch – the sinking of hypocotyl. axis in Earth – shorten so that cotyledon drawn into Earth
66 must break through Earth, or at least find cracks to pass through – Brakes through bowed to protect growing point p.69 do. – explain grasses breaking through the ground by turgency & stiffness of cotyledon.
69 Plants with hypo⟨*gäisch*⟩ cotyledon break through ground bowed – The convex side of arched hypocotyl turn up through apogeotropism.
72 Helianthus annuus weight of Cots. cause bowing
79 – Allium true Knee in the Cot.
79 experiments with cutting off Cots of Barley repeatedly & did not Kill
⟨*over*⟩ Haberlandt p. 94. Cots of Lupinus anatomically intermed between sub-◗ & hypo⟨*gäisch*⟩ Cots In Leguminosae all gradation between the 2 states
98 The 2 sides of Cots. not usually so much differentiated ♣ as in true Leaves.

title page *wt* Can Nutation help seedling rise through earth *wb* p.4; 12; Time 16○; *w*◊ 29; Dry 61; Mangroves 63; Climate 64; See Wiesener chlorophyll **2** *10–13m* **3** *1–3m* **4** *10–13m* **7** *7m* **11** *12–16m, 18m* **12** *26–28m* **15** *2m, 31–34m* **16** *7–11m* **17** *12–15m* **18** *35m* **23** *32–37m* **24** *8m, 25–29m* **25** *14–23m* **29** *27–30m* **30** *21m, 30–33m* **35** *1m* **37** *16–18m* **39** *6–8m/7w* ⟨*FD*⟩, *33m* **43** *27m, 33–37m/w* weight of seed **45** *6u "trockenen", 10–13m, 34–35m* **48** *7–10m, 10–14m/12u "Je | älter", 17–19m* **49** *12–16m, 27–38m* **51** *20m* **52.** *31–35m* **53** *1–6m, 11–15m/12u*✍ *"hypokotylen"/14u*✍ *"Verkürzung | Keimachse"* **58** *7m* **61** *1–5m* **66.** *13u "bergenden | Erdreichs", 1–14w* may not sensitivity to light of Philexia○ serve to find way through cracks *30u "genannte Keimblattscheide"/21–30w* short♦ stem bowed to protect bud at end ⇑*4u "27"/wbτ* **67** *28–30m/w* This explains grasses getting out of ground **69** *wt* Put * He attributes most importance to older part & partition of young plant. We have learned much from this valuable essay, though our observations tend to differ in some points *1–10m/6–8u "rückwärts | nachfolgt"/ 11m, 17–18m/12–24w* This is utterly different from my view *12–24m/17–18w* do not understand *28u "Raumverhältnisse | wird"* **70** *10–15m* **71** *14m, 36–40m, 36–40m/wb* So he knows nothing of my Nutation **72** *24–30m/w* weight of Cots cause stem to bend **75** *15–19m/10–20w* He evidently considers this the sole Nutation **76** *19m, 22–27m* **77** *1–4m, 20–25m/20u "Keimblatt", 24–26m/24–26u "mittelst | Rede", 33–35m/35u "Sachs | Experimentalphysiologie"* **79** *6–13m, 21–25m/w* bears on my light experiments **85** *12m* **88** *14m* **94** *4m, 14–19m/w* Lupine cotyledons anatomically *15u "grünen, vergrösserten"/17–18u*↔, *23u "Rückbildung", 25m/u "ausser | bau", 31–32m* **95** *wt* Gradation *2–22m, 17w* Bean **96** *26–30m, 26u "Aussenseite"/26–29m* **97** *25m* **98** *1–16m/w* Different function of upper & lower surface – the Upper much more active *18u "der Transpiration", 29–31m/w* in Cotyledons *31–35m*

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NB 20
20 *29–36m*

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cc, ds, em, mn, phy, t, v

NB p.79 Regrowth
p.80 & elsewhere extraordinary tendency in Larvae of Medusae to produce monsters & varieties.–
98 Monstrosity throwing light on primordial parent-form.–
NF ♦ p218; 220; 232; 233; 243; Best passages Häckel ⟨*cannot refer to this book – only 120 pp.*⟩
36; 73; 80; 92; 97; 100; 103
79 *6–12m* **80** *14–22m/w* Slight changes in conditions cause monstrosities **81** *3–4w* new structures arise **98** *15m/18–24w* Monstrosity throwing light on primordial parent-form
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tm

vol. 1, 169 *11–13w* does not satisfy me **181** *8m* **220** *21m* **280** *14m* **287** *7–15m, 17m* **389** *28m* **394** *21m*

vol. 2 SB 321 about differences between spiral tendril & notochord

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af, beh, ct, ds, em, fg, h, in, oo, pat, phy, rd, sp, ss, sx, sy, t, tm, ts, v, y

vol. 1, xxvii *3m/4w* skimmed *5m, 22m, 36–39m/36w* R to *39–43m/41w* R **xxviii** *2–5m/4w* R *22m* **xxxi** *21m*
℘
280 *6–15m*
℘

vol. 2 SB Band 2.– Ernst Häckel
♦ p.36 add spores to test of means of propagation. or proof of internal separation given not to Hackel; 59 on eggs of insects of many cells
✍ Vol. 2
p.242 colour of pelagic animals
244 Selectio feminina
245 Sexual selection; 246 do good ✍ Cop
239 good criticism on my term of struggle for existence – says ought to be confined to struggle between organisms for same end – all other cases are dependance – Misseltoe depends on apple.
259 Law of Perfection✍
270 Rudimentary organs; 272 do
over
⟨*over*⟩ ♦
In man Chapt I might add as proof of theory – "the progressive perfection or development of organic beings" – their diversity or differentiation"
[Under Man – allude to fullest description of Rudiments ever given by Hackell]
p278 Rudiment in Man & injurious, in what animal fully developed? Propose vermiform of intestine – see Todd Encyclop Man Cop✍
Rudimentary organs to p. 285.
305
♦ 361 Book order Cop✍
♦ p238

xi *22m, 29–33m, 33m, 35m, 36m, 37m, 38m, 41–46m* **xiv** *9–13m/11w* R *49m* **xv** *1–20m* **xvi** *13–17m, 36m/w* R
℘
cli *wt* abstracted **cliii** *4u↔/wt* it is indisputable *1–3m (Huxley)* **clv** *wt* says if no prejudice no one wd doubt affinity with tailless or anthropomorphic apes – *8–10m/5–13w* next division of tailed & tailless apes of Old World *28u "Gesässschwielen"/25–30w* anthropoids no callosities on rump *44–51m/w* Men sometimes have large canines. *wbt* **clvi** *9–13m/8–15w* none of these existing anthropoids is ancestor **36** *33–42m/24–42w* Formation of spores a distinct process **37** *7–9m, 10–12u "so | strenger"/w* ? Spores of Ferns?? **59** *10u "aus | zusammengesetzt"*
℘
171 *20–22m* **242** *18–42w* Sea – Pelagic animals of many classes colourless & transparent – good **243** *38–42m/w/wb* larvae which are pelagic colourless and not the adults **245** *10–13m/11u "menschlichen", 17–21m, 27u "Wamme | Stiers"/27–31w* dewlap of Bull a defensive weapon!! *30u "Schnabelthiers"/35–37w* ornith◗ ♣ **246** *26–*

32m/w X women ornament themselves to attract men *33–41w* women the most beautiful & song **247** *16–22m/w* may act materially on both sexes *28–30w* acts on intellect **253** *3–12w* Divergence or Differentiation of organs ♣ explained, as I have done for species **259** *1–10m* **270** *8–18w* organs become rudimentary as slowly & as by as many steps, as they are first formed. **272** *9–26w* not only organ, but whole individual may be said to be rudimentary. **275** *1–25m/6–8w* eyes rudimentary **277** *8–9w* Limbs rudimentary **278** *27m, 28m, 32u "Menschen | rudimentärer", 33u "Processus | Blinddarms", 36–40m* **279** *26–42m/28–32w* rudiments of sexual organs in both sexes **284** *1–20w* eg Parasitic animals are rudimentary wholes. **305** *2–10m* **427** *11–20m* **428** *22–38m, 22–28w* line of descent **429** *2–21m*

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ad, cc, cs, hy

vol. 1 NB ⟨*w not CD*⟩ 43✍; 49 facts for D; 52; 108 Baer; 117 monde ambiante
5 *17m* **43** *10c/w∉* **49** *21–22m* **52** *19–20m* **109** *9x/u "Baer"* **117** *4u "ambiant"* **118** *13–18m (Naudin, Lecoq)* **146** *17–20m/w* no **148** *5–6?, 19w* no **160** *17m* **165** *12m* **catalogue, 79** *wt* hybrids crossing – Aperca○ & sheep & goats *wt* p118 Saporta & Gaudry *8–21w* Adaptation bad term **80** *wt* 160 *wb* 13

vol. 2 NB 45 very good
⟨*by FD*⟩ errata 71; 16; 195
93; 106; 108; 111; 340?
1 *4–6m, 7–8m, zb* **11** *13m* **45** *4–22m* **71** *19–20m/19c/w∉* **76** *17c "by"/x* **93** *21–22m* **106** *17–19m* **108** *23–24m* **109** *1–2m* **111** *29–30m, 31u "Gnetum | Ephedra"* **112** *3–4m* **195** *22–23m/c/w∉* **197** *8m* **235** *20m* **340** *7–9m* **375** *32m* **408** *zb*

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ds, in, phy, sp, v

vol. 1 NB 381 cause of var.
382 grt. var. of Sponges; 385 do.
462 on origin of Sponges
381 *25–30m* **382** *15–37m/w* variability of Histology of Elementaries **383** *22–28w* variable in the species & in the individuals **384** *28m* **385** *22–39m*
℘
462 *30–33m/31u "homophyle"*

vol. 2 ℘

HAECKEL, Ernst *Natürliche Schöpfungsgeschichte* Berlin; Georg Reimer; 1868 [CUL, I]
ad, ds, em, ex, h, he, hl, ig, in, is, mn, or, phy, r, rd, ss, sy, t, tm, ts, v

NB1 p240 I must no about embryology
◆ 390; 409; 437 to 509
NB2 ◆
✍ 469 Classification of Mammals; 492 .... of Quadrumana; 501 Genealogy of Man.–
Read 1st Chapt
p228; 390 to end
good p.5 – for the beginning of <u>my</u> Book
Nothing about Sexual Selection○◊
SB ❑β
Hack–
p.230 reduction of parts an advance in ordganisation
p235 imported rudiment-Lung
p446 anomalous forms surviving in Rivers.
p457. Manner of descent of Birds
Placentata descended from several implacentata
481 Contrast of adaptation & inheritance
Lion & Sea-Lion
482 Intermediate forms
Man all used.

vii *2w* Read **ix** *31w* I have read **x** *⇑6w* I have read *⇑3m* **xii** *19w* Read **xiv** *32m/w* Read **xv** *19m, 31m* **xvi** *12–13m, 13–15m* 5 *24–27m/?/16–28w* (a) Perhaps begin my Book *wb* When theory generally accepted I say light will be thrown on the origin of man & his history. ♣ The meaning of this cd hardly be misunderstood, but I can see is○ not the period of going into details. now that the views **12** *23–26m/14–27w* List of Rudimentary Organs
℘
228 *26–32m/↕w* I shd think more differences in ♣ civilized individuals than in savages (?) Bates **230** *3–5m, 11–19w* lessening of number a result not cause of development **231** *30–33m/31–32u "die | Rückschritt"* **235** *1–7m/wt* Very important organ a rudimentary Lung *11–12u±/w* ovaries *22–23m* **236** *3–5w* See to this **251** *17–23m, 18u "Organen", 19u "Kiemenbogen", 9–17w* Branchial arches

20u/wτ, 27–31m **252** *19–20u "drei | Schwanzwirbeln"* **253** *3–9m/4–7u "muss | Stammes", 21–29m* **256** *1–25w* the lower forms change more slowly than higher Applies to Man (or I think terrestrial)

℘

390 *19–32m/22–29w* single origin most probable **409** *20–29m* **437** *3–4m/u♠/w* This last remnant of class *16–20m/17u "Pallas Nachtschmecke"/18u, 24u♠, 28u♠, 33m/u "während | embryonalen"* **438** *1–3m, 10u "weil | noch", 27u "merkwürdig übereinstimmt"/25–28w* embryology of Amphioxus **439** *wt* X I shd say creations like larvae of Ascidians gave rise to Vertebrata *5–9m/w* x Both groups out of same sources **442** *29–33m/w* Selachians parent-form of all chief Vertebrata **443** *24–27w* Selachii only in remnant **444** *33a∉* **445** *6–8m/w* Selachians parent form *13–16m/14u "Urfischen"/12w* Selachii **446** *9–13w* Rivers **447** *11u "Flussfischen", 10–12m/w* Rivers *14u "Zwischen | Amphibien", 14–16m, 17u♠/w* Rivers *22–24w* separate intermediate class **448** *11–12u "Stammformen | Wirbelthiere", 16–20m/18u/a "Lurchfische"* Lepidosiren **450** *12–15m* **453** *13–16m* **457** *wt* I shd prefer supposing that both classes descended from forms more intermediate than Dinosaurs & Solenhofen Birds *16–19m/18u "zweifelsohne | dieser"* **461** *20–23m/21–22u "Ornithodelphien | unterschied"* **462** *4–6md/5u "Jurazeit"* **463** *wt* Man has cloaca *2–6m/6u "zwölfte Woche", 8–10m/w* Breast bone like Birds *19u "eine | Klasse", 27–30m, wb* absence of teeth a change **469** *24m/w* Hydrax **471** *1m* **472** *17m* **473** *27–28u↔* **474** *wt* X Placentata descended from several implacentata or Marsupials *6–10m/w* thinks X **475** *27m* **481** *wt* contrast of adaptation & inheritance Sea-Lion & Lion – *10–16m, 21–25m/w* separate Lemurs from Monkeys *27–30u±* **482** *1–22m/w* intermediate forms, leading to various orders.– *26m* **495** *27–33m* **496** *9–13m, 20–23m* **497** *22–25m* **498** *1–3m/2c/u "Rolle"/w∉, 7–8u "dass | kann", 21u "Affenähnlichkeit | Menschen", 22u "einen | Volke"* **499** *28u "Rolle"* **503** *10–12m/11u "abgekürzte Vererbung"* **505** *9–11m/9u "entfernter"* **506** *8–11m, 18–22m, 24–26m, 31–34m, 35–37m* **507** *2–3u "theilweisen | Behaarung", 2–3w* loss *28u "aufrechte | Sprache"/26–31w* 2 chief points upright position & speech *33u "Kehlkopfs"/wb* Head of windpipe **508** *6–7u "höhere | Extremitäten", 8–11u "Indem | Sehens", 18u "Veränderungen | Gefolge"* **509** *17–19m/18w* (a) *25–26u "den | erblicken", 26–27u "August Schleicher", wb* (a) Remember a special part of Brain for speech **510** *18–20w* speech polygenitive *29u "Sprachen | Ursprache", 30–32m/wb* but we know nothing about lost primitive tongues, during earliest stages. **511** *15–21m/w* my argument & Huxley **512** *20m, 25u "Afronegern | findet", 29u "Mongolen", 30u "Mesocephali", 31u "Amerikanern"* **513** *25–43m* **515** *1u "meisten | Asien", 2u "das | Ort", 22–26m/23w* islands **517** *11–12m* **518** *6–9m* **520** *20–24m* **554** *19m*

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NB *w¢¢*
170 *col. 3 23m* **251** *col. 1 41m* **285** *col. 1 60m, 61m* **287** *col. 3 53m/u "Sarstedt"*

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gd, v

NB var insects do not vary in all localities p125
201 joints of Antennae variable – 201 Referred
125 *1–4m* **201** *wt* joints of Antennae variable

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beh, em, in, oo, sp, sx, ta, tm, v

NB Orthoptera 121– to 133
128 Katy-did calling
133 Fiddles of Locusts

SB 56, The weavil of N.A. attacks the introduced Pea
59 Remarkable variations in sexes & individuals of Brenthidae
68– variable instincts
121 – Males musical Grasshoppers; 124,125 – Males
128, 132,33 I fancy these musical instruments, which are secondary sexual differ much in 2 sexes – Rivalry of Males
x✎ 165– musical male Cicada
315 – Night-Moths dull coloured
373 – Larvae of Hymenoptera spin from lower life like Caterpillars – same structure in very different groups.

24 *27–28w⟨CD?⟩* At what season **26** *10u "dors", 10u "darers"/?* **56** *17–20m* **57** *5–7m* **59** *26–28m, 28–29u "even|sex", wb* How in different species? of genus? **68** *34–35m* **69** *1–6m/2u "variable instincts"* **121** *35–38m* **124** *29–31m* **125** *1–5m, 31w*♠ **128** *5–8m/5u* **132** *1w* Acrididae *23u "the males"* **133** *9–15m* **165** *17–20m/18u "The|organization", 26–28m, 34–37m* **315** *33–34u*↔ **373** *12–14m*

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gd, is, v

NB ✍ 142 Differences of Plants in Lanzarote & Fortaventura Remarkable
℘

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NB 66 Q
66 *6–16m*/Q *27–29m*/Q

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126 *8w* O **127** *4w* oh *8–10z, 12–13w* oh **128** *1m* **129** *6m/u, 13w* R

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NB Vol of Trans Phyll◗◊
19 *22–24m* **49** *3–7m, 9–15m*

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℘

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15 *27m* **17** *13–15m/13–14u*

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ad, af, cc, ex, fg, fo, gd, geo, gr, is, mg, no, or, sh, sp, t, ta, ti, tm, ve

NB Read from p.115 to end
SB ❑β ✍
Oswald Heer N.B. Hooker says the Mull Flora Miocene according to Heer allied to that on W. Coast of Greenland.
p.116 to 120 In Iceland various Miocene Trees – with American character like rest of Europe N.B. During Glacial period would Mediterranean & Ara-Caspian joined with Black Sea prevent S. migration of temperate plants & thus destroy many forms whilst in N. America would have remigrated from N. Or is it not that greater area of Old World has caused greater advancement of consequent extinction. Odd Horse surviving in Old World & it & Rhinoceros extinct in New World.
121 Madeira Tertiary flora Diluvial not many so ancient as Iceland. Thinks some of the fossil plants formerly lived in Europe
122 N.W. American fossil pl. like those of Europe. Subtropical up to 50° North
124 At Eocene period European Flora not American (NB Nebraska lower Miocene shows affinity with Europe.) In India Miocene feeble American character which is stage in Upper Miocene – Pliocene – disappears at diluvial period.
126 It seems one palaeotherium in under-Miocene period.–
127 Considering the well-proved warmth of Miocene period, the hot parts of world were probably very large & number of tropical forms ought too to be very large
128 List of Tropical forms together with cold forms which now flourish on Madeira which show how they could have lived during Glacial in Tropics. Mem. C. Moore list at Sydney.
129 list of trees which can bear our climate, but of which few bear ripe seeds.
131 Willow seeds perish if not sown immediately – showing on what odd particulars distribution, for instance to N. Zealand, may depend.–
132 general conclusion & comparison of state of Europe during Miocene Period
135 Miocene Insects American same general results as from Plants
137 Apparently Zones of Tem. in Europe during Miocene as now
138 Reference to paper on Arabo-Caspian since Murchison & Co
143 On Proportion of American forms now in N. Europe from Martius

144 On connection of Europe & N. America in Diluvial Time – On relation of several Atlantic Isd in formation of plants to Europe – on greater relation to Europe than to Africa – On relation of living Madeira shells to extinct European species.– Relation of Madeira plants to American
148 on separation of shells at C. Cod.
149 Arguments against Hopkins deflected Gulf-Stream
150 Arguments against Lyells views on World Temperature from change of Land.–

116 *19–23m/21u "Liviodendron | islandica"/w* American? *32u "Platanus aceroides", 38u "Rhus"* **118** *3u "Pinus | Mx.", 6u "entspricht | Nordamerikas", 7u "amerikanischen", 9u "Alle | Islands", 10u "sind | Formen"* **119** *20–21u "nord | Tulpenbaum", 23u "Juglans bilinica"* **120** *13–14u "jetzige | hat", 9–15w* Tertiary vegetation of Iceland, like rest of Europe a decidedly American character *16–21w*♦ Iceland existed as Volcanic Is. in Miocene period. **121** *1w* Not so ancient as Iceland Plants *12–13u "Laurus | verschwunden", 18u "muss | Zeit"* **122** *1–4w* N.W. American plants like European *3–7m, 16–21m/18–21u*± **124** *18u "eocenen", 19u "die | amerikanischen", 21u "untermiocene", 22u "subtropischen", 27u "grossentheils | Arten", 28u*↔*, 32u "Der | deutlicher", 34u "pliocenen", 35u "noch | subtropische", 37u "Der | das", 47u*↔ **126** *44–45u "reicht | hinauf"* **127** *13–29w* considering that range of Hottest countries was so great during Miocene – the number of species in Equatorial regions ought to be very great; had they not been destroyed during Glacial period. **128** *wt* There are truly tropical forms which flourish in Madeira, so cd have borne the Glacial climate. At Sydney some tropical forms live. See C. Moon letter to me. **129** *7–19w* All these trees can bear much colder climate than own, but do not get ripe seeds *46–47m/47u "reift | Früchte"* **131** *41–42m/w* Willow seeds perish immed. if not sown immediately **132** *10–12u "unteres | treffen"* **135** *2w* Insects *4u "Pflanzenwelt | übereinstimmen", 30–33m/w* American Insect-forms **136** *29m* **137** *13–14u "Bewohner | geben", 17–22w* Zones of temperature as now in Europe during the Miocene period *42–45m* **143** *33–34m, 46–48m, 50–54m* **144** *22–23m/23u*↔*, 28–29u "erstens | Insel", 31u "weitaus | Bowdichiana", 32u "einer | Art", 34a "sie"/[..., 38–39u*↔*, 41u*↔ **145** *3m, 4–8m/w* Relation of Madeira Plants to American forms *17–20m/w* Land-shells like tertiary land-shells of Europe *26–45m/28u "527 | einheimisch"* **146** *41m/u "Zur | solche", 49–51m, wb* It is remarkable extinction of Rhinoceros & Horse in America & not in old World, as there seems to have been more extinction & replacement of forms in New World than in old. **147** *1–3m/1u "australisches"/2–3w* Australian forms in Madeira *46–48m/w*✍ Hooker says no Pittospora is Indian.– **148** *40–42m* **149** *7x, 45–51m/w* Remarks against Hopkins deflected Gulf-Stream **150** *1–8m/1–2w* World Temperature

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ad, che, phy

NB 219 imperfection of eye; 227 do.; 269 do.; 390 do.
234♦ like Drosera – pressure Good – chem action & Heat
Nothing for Descent
♦ Mrs Treat preserved T.H. Farrer Answers to Donders Helmholtz
219 *10–20m/10–14"..."* **227** *13–24m, 26–30m, 32–34m* **228** *3–11m* **234** *6–10m (Johannes Müller)/w* so with Drosera **235** *15–18m* **269** *14–23m* **372** *13–17m* **390** *5–18m* **391** *15–19m*

HENFREY, Arthur *Botanical and physiological memoirs* London; The Ray Society; 1853 [CUL]
cc, fg, he, hy, phy, spo, tm, wd

NB xxi, xxii &c; 2; 8; 23; 42; 94; 307; 310; Book 312 X important; Book 317 X? to end of part
346; 352
116; 118 Books on Divergence of Leaves
SB ❑β
xxi Statement that C. Adami produced by budding – doubts p.317 to 320
xiii Nat Hybrid in Laburnum
3 Teeth in Whales
42 Littorella lacustris never flowers under water
310 Hybrid Ferns
312 Single-leaved Fragaria
312 On Hereditariness in Sports of certain Trees

313 my view of cultivation, putting luxuriance very strongly forward Ch I
314 Sports

xi *10–11m, 22–27m* **xii** *2–11m, 18–21m, 25–26Q* **xxii** *2–10m, 14–16m* **2** *32–38m* **3** *37–38m* **4** *40u/w¢* **8** *22–29m* **23** *34u "multiplication"* **24** *12–25m* **39** *22–25m, 30–34m* **42** *9–14m, 21–27m* **45** *7u/w¢* **46** *10–12m, 33–36w* p xxiii **81** *33–35m* **94** *⇑5–1m* **95** *7–17m* **97** *33–36m* **108** *30–41m* **115** *42–43m* **116** *12–24m, 27–29m, 28–31m/28u "Principles | 6"* **117** *3–6m, 9–12m* **118** *wb (Fibonacci numbers in plant organisation)* **119** *23–30m* **195** *11–18m* **307** *36–38m* **310** *19–32m, 41–45m* **312** *20–21m/21u "Godron", 41–45m, wb* Henfrey cannot trace this essay **313** *5–16m, 21–24m, 32–35m, 40–44m* **314** *5–12m, 21–27m, 25m, 29m, 32–39m* **315** *2m, 6–10m, 10–11m, 11–23m/13–15w* seems to think *15–16m, 20–21m* **316** *14m* **317** *1–3m, 5–9m, 18–19m/19u "Horschuch's | plants", 21–23m, wb* A. Henfrey says that Hornsuchs essay is long & formal essay in the earlier numbers of the Ratisbon Flora for 1848. Ueber Ausartung der Pflanze.– **318** *36–39m* **319** *9–12m* **320** *1–8m* **322** *4–14m*✐ **347** *19–20m* **352** *34–38m*
℘

HENFREY, Arthur *Outlines of structural and physiological botany* London; John Van Voorst; 1847 [Down]
ct, gd, phy, tm

NB ✐ Aquatic Pl no epidermis no fibro-vascular bundles – but elongated cells no stomata

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gd, mn, oo, v

NB p.471 Hooker on Conifers in S. Hem.
SB1 ❐ℜ
p263; 285; 289; 313; 319; 320; 361, 2; 384; 386; 388; 418; 421, 2; 427; 435, 7; 447; 450; 465; 468, 9; 4♦
SB2 ❑β
263 on variable twisting in Solanum dulcamara
385 Remarkable distinction in E. & W Flora of C. Colony (as in Australia
388 Flora of Azores
422 Central European Plants on S. Nevada & Pindus – p447 – 450 Endemic Alpine Plants
– Hooker on Islands having <u>wooded</u> plants of Compositae.– Summary of –
435 Thistle of Pampas not social in Europe
437 Rhetian Alps 106 Phanerogam in 23 Fams – 468 Cordillera 250 sp in 50 Fams.
468 S. American Alpine forms at great height in Cordillera, with Arctic forms
469 Hooker on resemblance of Vegetation of Pacific isld being more apparent than real.
471 Hooker on Coniferous Tree of Australia
℘

263 *10–16m* **284** *19–21m* **285** *7a "case"/7–10m/w* ie when style developed before corolla *15–18m* **286** *12–13m, 14–17m* **289** *10–11m, 25–26m, 28–30m* **313** *17–18m* **319** *21–29m* **320** *1–5m* **361** *27–37m* **362** *6–9m, 31u "genera | Japanese", 38m* **384** *29u "Rubus"/27–30m/25–28w* Is this f. in Tropics **385** *6–13m* **386** *20–25m* **388** *1–6m, 29–35m* **389** *38m* **390** *4–7m* **418** *17–19m, 22–29m, 29–32m* **419** *4–6m/w* no. ♣ Antarctic Lands *11–12m, 30–36m, 36–38m* **421** *27–33m/32u "provided the"/33u "with | climate", 39–42m* **422** *8–12m, 36–39m, 40–43m* **423** *1–4m* **427** *17–19m* **435** *5–7m* **437** *1–5m* **445** *27–29m* **447** *20–24m* **450** *16–24m/w* species Alpine **465** *5–12m/w* not isolated Mountain **468** *26–30m* **469** *15–28m*

HENLE, Jacob *Handbuch der systematischen Anatomie des Menschen* Braunschweig; Friedrich Vieweg & Sohn; 1858 [CUL]
phy

NB p135–162

℘
133 *wt* (a) Muscles all blended together *1–6m/w* (a) *21u/wτ* **135** *wt* to be reduced to 2/3 – sides cut off where I have put pencil lines *⟨preparation of fig. for reproduction⟩, 11–13m/w* see Back **136** *4w* pyramidis *6–17w* The Pyram is not attached to skin between Brows – I must refer only to movement, however. caused. *34u "sehr dünne"/35u "sehnig"/36w* sinewy *40m/u "M. pyramidalis"* **138** *38u/wτ, 42–44m, 45–50w/wb* (a) It does not seem clear what muscle acts in those who can move their ears. **139** *6w* (B) *35–42m/38w* (a) **142** *fig.m/w¢* **143** *33m, 34–36m/34u "M. malaris"/35u↔* **144** *5–7m/6w* (a) *32–38m/34w* (b) **145** *fig.w (names of muscles)* **146** *14m, 38–43m/38–39u↔* **147** *31m, 33u "bedeckt | orbicularis"* **148** *fig.m/w♦ (names of muscles)* **149** *wt* All the 3 previous muscles (ELS) sometimes equally draw up nostrils as the levator prop. *22m, fig.m/w (names of muscles)* **150** *24–34m/w* hardly distinct from platysma **151** *3–5m/w* (a) *7m* **154** *12u "M. | sup."* **155** *12m* **159** *3–18w* Nothing particular
℘

HENRY, William *The elements of experimental chemistry* 2 vols.; London; Baldwin, Cradock & Joy & R. Hunter; 1823 [CUL, vol. 2 only, pre-B, S]

HENSLOW, John Stevens *Descriptive and physiological botany (Lardner's Cabinet cyclopedia)* New edn; London; Longman, Orme, Brown, Green & Longman; 1837 [CUL]
ad, beh, br, cc, che, co, cs, dg, ds, ex, f, fg, fo, gd, gr, he, hy, is, mhp, mn, oo, or, pat, phy, sp, sx, t, tm, ts, v

NB1 ◆ Are there yellow hyacinths for there are blue & pink–?
◆ The purple Dahlias show approach to the third colour <u>or blue</u> ?
◆ Does Desmodium gyrans. p.166 sleep *
Zostera◆ is one of family, not peculiar characters & Ground-Nut◆ the most hostile flower p.278 to non-intermarriage theory Does not flower under ground
NB2 ◆ People constantly speak about every organism being <u>perfectly</u> adapted to circumstances, if so how can there be a rare ♣ species breeding power being efficient (food not sufficiently ♣ abundant is answer
NB3 ◆
If my argument see previous page be pushed to its extreme it will include every organic being – which is unfortunate. Geograph: range has ceased to argue for this &c &c &c.– Transmutation of organs have done so.– That is criterion
✍ How close an analogy between dicotyld. seed. & bulb.-food in each case laid up in a modification of leaves. for a germ
◆ I do not understand whether the bud makes the leaf, in the axilla of which it stands? p.79
◆ Where can I find many facts about monstrosities in plants bearing on laws of abortion degeneracy & adhesion
◆ Continue description of woodcut
NB4 Ask Henslow
✍; ◆ The simplicity in ultimate structure of Vegetables very remarkable
2; → 11 – ? Marchantia –; 28; 51; 52; 56R – ♣; 58; 71; 79; 98; 118; 114; 140; 163; 169; 188; 195 reference ask Henslow – coral; 201 ?; 186◆ ?; 220?; 221?; 223; 233; 236; 241; 249?; 253; 254; 256; 259; 261; 263?; 266 266?; 272?; 276?; 279?; 281; 286?; 288?; 290?; 294?; 300?; 303; 308; 312
[49 Twining stems]
p173. Water will not freeze till 16 1/2° in capillary vessels authority? – in relation to roots melting.
Spiral p175.
SB ❏β
p.130 Variation in Phyllotaxy – Flower pentamer. & tetramerous.–
15 cylinders becoming Hexagons & Dodecahedrons – for Waterhouse view
p169 Poisons –
114 Cotyledons of Sycamore due to division
167 Dionaea✏ Knight gave bits of Beef to Fly-Catching Plant.
220 Night-flowering plants with lurid flowers – Cereus with splendid flower only at night Coloured ??
277 The pulp round many fruits does not accelerate their growth
278 Exceptions to damp closing pericarps

1 *zb* **2** *21–27m/wb* Phen Life 1 Physiological description of organs in themselves & in different animals 2. Theory of <u>co</u>transmutation of organs, not separate, or Descriptive Botany relation to habits & conditions, which cannot be told by consideration of separate organs. **11** *13–18m/ ?* **49** *fig. 41.w* Left hand Right H **51** *12–17m* **52** *6–10m/w* tree of life **56** *4–7m* **57** *3–17m, 18–21m* **58** *1–22m, wb* How can tuber be distinguished from sporule of cryptogams? by being organ for its production? **71** *3–8m, 9–10m* **98** *3–18m* **105** *7–9m/8–9u "is | stone"* **107** *1–6m/3–4u "Lindley"* **113** *7–10w* V. p268 *13–19m* **114** *22–25m/24u "proven | subdivision"* **118** *11–29m/26–29m/1–29w* is this merely apparent, will be said that parent never was regular flower? **120** *11–17m/w* find out some true species which is distinguished by bearing thorns *26–36m/w* all this might be put strongly to favour my theory **121** *1–15m* **122** *1–7m* **126** *8c/w¢* **127** *16u "twenty-one", 31–34m/32u "eight", fig.* | | **128** *wb¢¢* **130** *8–11m/8u "few cones", 15–17m* **132** *19c "9/34"/w* 13/34 *22c/m/w* 21/54 ⟨*he means 55*⟩ **163** *19–38m* **164** *1–10m* **165** *22–23u "but | depressed"/21–24m/w* try this with Ether ⇑*1u/wb* Drosera has duct But Dionaea <u>not</u> so **166** *6–12m/w* Does Desmodium gyrans sleep *24–28m* **169** *1–5m, 7–27m, 33–39m* **173** *14–20m* **186** *14u "carbonaceous matter"/15–19w* whence derived primarily **188** *12–19m/ 1–21w* touching mutual impregnation **193** *1–31m/10–26w* try with Corallina *wb* if Corallina do, then doubtless the Nullipora will, although living in 200 fa. **195** *11–20m/13u "feet", 17–19w* where described *17–21m/wb* relates to the three colours in varieties **201** *19–26m/?/23u "free | exceptions", wb* State in new Edit – case of species having pure colours **220** *2–4m/2u*

HENSLOW, DESCR. & PHYS. BOT.

"night-scented stock"/wt Is this peculiar variety **221** *29–38m, 38u↔/w* is there a bag here? *wb* how like vipers **222** *21–27m, wb* describe (See Humboldt) Argument for one origin how curious the similarity in products between animals & vegetables is – **223** *22–27m* **232** *16–22m/w* Oak & Chestnut – Chartworth Vol 2 **233** *37–39m/wb* will it ever check flowering or more especially fruiting?||→ **234** *1–5m* **236** *28–31m* **237** *8–19m* **238** *19–22m, 24–29m* **240** *2–12m, 29–30m* **241** *1–9m* **249** *22–24m, wb* How do you reconcile this with Lemna **253** *11–22m (De Candolle)* **254** *24–36m* **256** *12–21m* **259** *30–35m* **261** *19–31m/23–26w* where related **262** *1–8m, 10–14m, 23–30m/30u "in succession", 32–39m/37u "Stylidium", 38–39m/wb* I examined this at Maer **263** *1–2m/wt/1–4w* has opposite tendency ♣ fact (a) *26–27u "the influence"/w* Subularia &c &c *33–38m/wb* How can these cross – **264** *1–15m, 26–33m* **265** *12–16m* **266–267** *wb* Then it is certain whole grain of pollen must be wafted even as in Palm!– where 30 miles apart **272** *15u "ovaries"/w* ovules? *18–20m/19u "ovules | abortive", 31–35m* **276** *16–22m, 25–33m* **277** *22–27m/24–25u "pseudospermic | provision"/w* how *28–31m, 33m/u "compensation | which"* **278** *13–16m, 29–39m* **279** *21–26m/22w* hermaphrodite *24–26m, 24c/a "produced | the"/w*✍ is carried *wb*✍ But Dic Class says that the Arachis flowers above ground **280** *18–22m* **281** *1–6m* **286** *13–27m* **287** *16–21m/?/20–21u "scarcely differ", wb* Azalea, Rhododendron, Lychnis & Cucubalus? **288** *3–9m, 13–18m/18u "marked | species"/16–23w* is not this arguing in a circle ⥣*11–3m/wb* From the not greater number of hybrids in Dioecious might it not be argued that there might be super-foetation by the more fertile pollen?– ⥣*5a "we"/wb* a great exception Herbert & Knight **289** *16–23m, 26–35m* **290** *4–12m/w* argue against this *12w* who? *12–13w* Most strange doctrine, when we reflect on animals.– Potato – Dahlia even granting two species *wb* sowing Ribston Pippin ♣ a ribston pippin but not quite like, is produced **294** *3–24m/w* periodicall ♣ opening of flowers even in dark does not harmonize with this **300** *32–35m/w* No **303** *wt* Compare St Helena in distance with Sandwich Isls *10–19m* **308** *1–18m* **312** *22–32m/19–27w* See Bowerbank's work *wb* What is the character of my Van Diemen's Land Fossils **313** *28–29md*

HENSLOW, John Stevens *A dictionary of botanical terms* London; Groombridge & Sons; n.d. [Down, S]

NB ✍ Lancinata not given

HERBERT, William *Amaryllidaceae* London; J. Ridgway & Sons; 1837 [CUL]
ad, beh, br, cc, ch, cs, dic, ds, dv, f, gd, he, hy, ig, mhp, no, phy, sp, spo, sx, sy, t, ta, tm, ts, v, wd

NF In Letter talked to me of an Appendix –
NB1 Read whole Memoir
p.8; 28; p.32
411, 12, 16 – Supplement
p.28
Any Plates of Hybrids
136 &c &c description of the Hybrids
V. Hybrid in Index
NB2 411 Labels for Gardens
✍ Oct 18/55/ This Book has been fully abstracted & the abstracts distributed.–
p412 Case of Hybrid sporting into character like other species Q
p416 Hybrid from Rhodora Canadensis & Rhod. Ponticum in Flower

8 *3–30m (Lindley), 32–40m* **18** *20–33m* **19** *1–8m (Jussieu), 20–27m, 37–39m* **28** *38–44m* **29** *2–17m, 22–27m* **32** *32–38m/38u "on | ripened"* **211** *18–26m, 27–35m* **283** *12–19m/12m/13m/15w* fertile Hybrids *20m/21w* infertile Hybrids **284** *1–3w* note p.412 **335** *4–7m (Kölreuter)/w* in ♣ 1775 & following years *7–8u* **336** *30–31u "hybridising | offspring"/w*♦ what in varieties?! **337** *wt* (a) I see in Journal he in fact gives up genera – ie thinks some genera, which will not cross, have probably descended from one stock *3m/w* (a) *6u "any | intermixture"/w* Fowl or Peacock! *9u "to | genus"/9–18w* Grouse & Pheasant all one genus. if term genus thus ill-used some other term must be invented. *29–30m, 34–38m/37–40w* Polyand *41–42m/ 41–42m/w/wb ⟨botanical terms⟩* **338** *16–18m/17–27w* not known probably because changed gradually – same answer can be made to those, who say. when was species made? *37–38Q 40–41m/w* ? where published *40u "Mentha"/wb* Pallas specifies the Labiatae as plants which cannot naturally be crossed. He must, however, be refer to Snap-Dragons *42m/wb* No Papilionaceous flowers Some Monooecious & Dioecious... **339** *19–24m, 42–43m/43u "father"* **340** *1–2m, 5–7m/5u "black | pony"/5–12w* instance of my law of variation agreeing other species of genus *30–33m/32u "31 sterile"/33u "quote | constitution", 34–36m* **341** *wt* (a) contains remarks on acclimatizing of plants *1u "Sweet | Britannicus"/m/w* (a) *6–9m, 9–10u "naturally | approximated", 10–15m/12u "isolated"/15u "ready to intermingle", 33–37m/34u "varieties | prevented", 41–42u "did | sterility"* **342** *wt* + is this not error: does not constitutional difference confer some difference in innermost organization, or rather on whole organization *1–4m/3–4u "greater | others", 7u "constitutional"/w + 8a "botanical"/w* ie external *16–32w* It might be worth while to consider native conditions in Kölreuter *23–24u "dissimilar | genera"/w* Crinum *27–32m, 41m* **343** *wt* Animals & plants are domesticable because not rigidly adapted, & these are easily hybridisable.– *1–2m, 5–15m/10–14m/10–11"..."*✍, *16–17m,* ⇑*14w* Crinum ⇑*12–4m, wb/*↕*w* Habits &c determining sterility (& hence probably intermarriage in some degree) is very important, as solving the case of willow wren & explaining great importance generally solving question of habits in determining what is species – a fact tacitly admitted by all naturalists. Habits being not fixed in domesticated animals, or indeed in plants, not exactly related, ♣ to the varying conditions causes the greater facility in being crossed.– **344** *17–23m/18w* Calceolaria *29–30m/u "abundantly fertile"/"...", 32–34m* **345** *wt* * Loudon both of Europe, figured in Bot. Mag. 99, & 2183.– *2u*♠*/w* * Linaria *3–5m/u±/w* Mexico Penstemon *4a "gustifolium"* Louisiana *10u "whole | which"/11–14m/13u "offering | fertile", 22–28md/22w* Cereus *42w* Cucumis **346** *5–6m/u "reproduces | abundantly"/wt* Did I not examine this at Maer ??? *4u/a "special"/wt* p.352 properly Lowii 17.1455 Herbert Bot. Reg. *4a "speciosa"/4–7w* Bot. Mag. 3604 this reference from Loudon *12–14m/12–13u "that | genera", 15–17m, 18–23m/18–20"...", 36–43m/x/wb* X This would all apply to animals. but breed is. not introduced with this consideration.– **347** *wt* We know there is something in intimate structure of Marsh Plants which renders it wholly impossible to live in dry & vice versa with dry. & as ♣ crossing ♣ makes constitution half way, it affects the most important part of whole structure, – even as much as form of heart or other vital structures.– *4–5u "In | parents", 12–18m/w* How exactly similar to giving dash of courage to greyhounds by Bull-dogs blood *23–24u "accidental | seedling"/23–31w* This is like sudden appearance of cowslip from primrose it is analogous to Australian dogs, producing piebald young. *25–31m/26w* X *33–34m, wb* X against my theory.– change, however, is sudden – & not many generations.– From foregoing facts, about constitution we should expect such changes to be slow. & likewise any attempt to change aquatic to dry plant This is only one particular, in others the change? *wb/35–42w* See. Sir J. Banks Vol I. Hort. Transact. Laurels not raised by success. generations **348** *10u "connected | membrane"/11–14m/11–21w* Now does this tendency to sport in hybrids decrease after several generations of same appearance same fact as in varieties of animals where crossed.– *22w/24w*✍¢, ⇑*9–1m/w* must be read ⇑*9m/w*✍ read ⇑*7–6[...],* ⇑*5]* **349** *6u "the | out"/w* 3 *13u "cross-bred seeds", 28u "coverings"/w* 3 *32–38m (Gaertner, Hedwig, Kölreuter)* **350** *1–8m/4u "full | seeds"/wt* I doubt whether Gaertner now allows this. See to it.– *25–31m, 25–28m, 38–43m (Gaertner)* **351** *6–11m, 27u*✎ *"every ovule"/15–17w* impossible to be more fertile *26–29m/m*✎*/22–27m/26u*♠*/27u "big revolution"/29–30u "Datura | laevis"/26–30w* x Crinum Datura *wb* Might not Gartner have been a bad Gardener & so not had his plant so healthy – I think Herberts positive facts outweigh negative: he knows so well causes of error & trusts to nothing but appearance of hybrid plants– **352** *8–10m/7w* Lobelia *9–14m, 14–16m/15u "seeded abundantly", 18–19m/u "Wiegmann | language"/w*◆ Enquire at Linn Soc *23–26m, 28–32m, 33–38m, 41–43m, wb* does the multitude plants preserve them, by allowing very many impregnations, the stigma keeping its power – with respect to wheat **353** *2–8m/w* Note in Philosoph – Transaction. about White Blue Peas **354** *9–18m (Gaertner, Wiegmann, Knight)/12u "is | erroneous"/13u "oat"/16a "racemosa"* Scarlet *18–22m/"..."/22u, 24–28m/w* This must be functionally dichogamous. *27u "Calceolaria"/24–28w* In Calceolaria ♣ stigma ready before ♣ pollen *29u/a "Pelargonium | Alstroemeria"/29–33w* in these ♣ stigma ready after pollen ⇑*6–2m/*⇑*4u*♠ **355** *3–5m, 8w* Zephyranthes *13–17m/w* This shows two sexes differently affected by conditions: are sexes ever unequally affected in Hybrids.– *15–19m, 23–25m* **356** *⟨u*♠*⟩ 1u/3u/4u/7u/wt* Crinum, Hippeastrum *20–24m, 21u "accidental impregnation", 29–35m* **357** *⟨u*♠*⟩ wt* Pelargonium *1–5m, 8–12m, 9u, 10u, 14u, 14–17w* see Sweets work on Geraniums *20u/21u, 24–25u±, 27][, 29w* Passiflora *32–37m/34u "not | fruit"/w* !! my notion of fruit improving **358** *wt* Note p.411 *11–12w* Gladiolus *10–15m/13–22w* seems to leave out of question, greater indelibility of some stocks than others *16–24m/21–24m, 25–30m, 36–40m/w* good step in series of infertility **359** *19–20m/20–23w* Rhododendron Rhodora Azalea *30–32m, 38m/u*♠*/w* Nicotiana *42–43m* **360** *6–11m/6–14w* I am sure I have heard of some such facts in animals: new characters educed this is constitutional ? difference *21–23m, ⇑12–10m/⇑12u "fragrance", ⇑8–6m/⇑6u "very | number", ⇑2–1u "Altaclarae"* **361** *5–8m/5u "profusion", 42–43m/u↔* **362** *wt* I should think it impossible that many hybrid permanent species were produced from the conditions of the place seldom being better adapted to the hybrid than to either parent. *1–3m, 1u "important", 4u "themselves | situation", 15][, 15u "Rosa", 21–24w* Rosa nothing particular *25–31m, 43][/u "honeysuckles"* **363** *7][, 8u "magnolias"/w* Magnolia *7–11][/w*✍ Calceolaria *13u "Calceolaria", 23–43m/35–36u "therefore | thereof"/26–30w* (a) Q *wb* (a) My rule of variation from domestication producing changes analogous to those found in other species of same genus, thus is seen to hold good with varieties produced by crosses **364** *5–7m/3–8w* there is a case of different constitutions crossing *16–22w* Calceolaria Loudon makes 12◆ many species & many vars. *23–30m/26–27u "they | sorts"* **365** *6–9w* Gaertner tried only few, but fertile *10][/w* Gladiolus **366** *9u "floribundus", 18–21m/w* (a) *27–31m/w* Is this fact owing to these being double *33–43m/34u "almost"/36u "double"/37u "pink"/39u "although | together"/ 34–38w* these if single, or quite fertile would be true species *wb/↕w* (a) Now this shows that some ♣ species will not cross (which cannot be accounted for by constitution), which yet by their appearance must be forced into one genus – || on other hand we have seen most remote forms forced into one genus – shows definition of genus will not serve & shows power of crossing has no close relationship to affinity, (even of constitution) but to some other causes – age – **367** *27–28w* Camellia **369** *31–43m/35–36*Q✍, *42–43m* **370** *wt* X weakly anàlogous to successive generations fixing peculiarity *1–5m/2w* X *23–36m/24–25w* Turnips **371** *wt* B. This may be well○ introduced in my views of all organic beings marrying – *4–7m/7–14m/ 5–12m/10w* B *6–12m/w* Mr Knight makes very same remark Vol I Hort. Transact. *15u "different | aspect"/15–22m, 27–32m/27–34m/w* in this case of hybrids tested probably by slight infertility (a) *⇑6u "pollen | another"/⇑6–1m/w* my theory explains this: because offspring differ in the two cases, in one going back to parent, & in ♣ other remaining constant *⇑3a "stock"* But they do not yield so much seed with pure parent *⇑3u "fecundate them", ⇑2a "themselves"* still stronger when with a 3d species *⇑2a "fertilise"/wb* but they fertilise less *wb* Probably stigma would actually prefer pollen of other plant; as stigma ♣ remains open to choice – & as in Mammalia bred in & in, loose passion (but I do not know whether prefers other kind)– **372** *7–10m, 18–31m, 30–36m/w* No. note p.375 *38–43m* **373** *wt* XX I think these facts only show that constitution, or internal differences are far more important than external.– *23–30m/25w* XX *28w* Nerine *28–34m/31u "Loxanthus", ⇑4u "conformity", ⇑4u "4 | mule"/w* XX *⇑3u "verified"* **374** *3a "feature"/wt* namely the difference of the perianth being centripetal or centrifugal, in addition to ♣ its distortion *6w* P *8][/w* Heaths *9–12m, 25–29m/27u "referable | genera", 33–38m/33–34u "The | especially", ⇑5u "complete fertility"/↕w/wb* P As constitutional differences, probably, show ♣ greater distance of common ancestor, than external differences, so as these constitutional differences can be readily discovered by facility of crossing – such facility admirable assistance.– in same way habits of animals so useful. **375** *1–7m/1u "sixteen"/7u "1835", 34–35m* **376** *10–16m/w* last step in series of infertility *⇑4–1m* **377** *1–2m/wt* It is analogous to the seedling Camellias recovering their simple flowers *8–16m, 18–23m, 35w* Nicotiana *⇑3–1m/⇑2–1m/ ⇑1u↔/wb* Variation in ♣ unimportant character **378** *3a/u "different power"/wt* Gaertner p.262 says false *1–15m/1–7w*◆ case of the passing of a plant from one Linnaean class to another. *wb* NB See P p.374 The value of crossing, as a test of genera &c is of little value, as the Natural System seeks to know relationship & does not attempt date of separation **379** *wt* (a) This cross in Gaertner i a, & i g. ie less than (K)a normal. May not much be attributed to skilful gardening ?? *9–13m/w* Petunia (a) *11a "P. nyctanigenaeflora"* Hardy *11a "phoenicia"* frame *11–13m/13u "than | parent", 14–16m/15–17u±, 20–23m/21–23m/21–22u "in | itself", ⇑6–4m/⇑7w/⇑3–1w* anagallis failed with Gaertner; Hibiscus not tried by G **380** *11–14m, wb* Hybridise sensitive Plant & sleeping Mimosa & then try my experiment – **402** *8–12m, 21–24m* **411** *23–33m, 37–41m/37w* p.358 **412** *1–7m, 33–40m/35–37*Q *38–40m* **416** *52–55m/w* considered by Lindley a true genus **Catalogue** ⟨*New works in course of publication by James Ridgway & sons, April 1837; scored on last page against Forbes, Horticultural tour through Germany, Belgium and France*⟩

HERMANN, Ludimar *Elements of human physiology* London; 1875 [Down]

105 *10–13m*

HERMANN, H.C. *The Italian alp-bee* G. Neighbour & Sons; 1860 [CUL]
beh, ct

NB ✍ Cells Instinct &c & Marked
6 *9–12m, 19m/u "Yellow Alp-bee", 21–23m* **7** *1–4m, 25–27m* **8** *17–19m, 21–24m* **10** *3–5m, 10–14m* **11** *29–30m/29u "2,000"* **24** *10–16m/15c/w ⟨not CD⟩, 31–36m* **25** *1–9m*

HERMANN, Ludimar *Handbuch der physiologie* 6th vol., part 2; Leipzig; F.C.W. Vogel; 1881 [Down, I]

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161 *21c/a "surprising"/w* some degree of *22c/w∉*

HERSCHEL, John Frederick William *Physical geography* Edinburgh; Adam & Charles Black; 1861 [Down, FD]

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25 *8–19m* **35** *20–27m/22u*✍ *"depending | will"* **93** *10m/w* yes 1833 **135** *21–28m* **136** *2–8m* **167** *24–31m* **182** *1–20m (Bacon)* **287** *27–33m* **351** *5–12m, 29–33m* **352** *1–7m, 16–20m/16"...*

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118 *3–10m, 24–30w*●

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HERTWIG, Oscar *Über das Zahnsystem der Amphibien* Bonn, 1874 [I by author] [CUL.1900]

SB ❑β
101 101 257
⟨over⟩ O/

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sl

NB 23 219 dates; 229 speaks of History of Chinese standing *w*◊ 1000 years
SB ❐ℜ
229. ancient precise Rule for selection
p.219 This great Encyclop was published in 1737.– but it is compilation
p221. Name of this Encyclopedia
23 *5–6m/u "Ma-touanlin"* **24** *zt* **219** *3–5m* **221** *2u ⟨title⟩* **229** *9–12m/10w*✎ Plot *12–14m/12–13m* **239** *8–9m* **254** *4–7m* **255** *7–9m*

HEWSON, William *The works of William Hewson, F.R.S.* ed. G. Gulliver; London; The Sydenham Society; 1846 [CUL, I by editor]
phy, v

SF *⟨letter from Gulliver⟩*
NB Blood corpuscles nothing particular for me, I think
p.218 p.238 vars.⇨ in vars. X in Do

℘
218 *5–7m, 18–19m, 35–37m* **219** *10–13m* **236** *39–40m* **237b** *47m, 48m* **238a** *13m, 14m, 23m* **238b** *18m, 20–22m, 27–29w* very variable *wb* what var. **239b** *wt* send blood *6m, 46m/w* white♦ owl *wb*♦ which is white owl **241b** *10m*
℘

HEYWORTH, Lawrence *Glimpses at the origin, mission and the destiny of man* London; Williams & Norgate; 1866 [Down, I]

HIBBERD, Shirley *The fern garden* 4th edn; London; Groombridge & Sons; 1872 [Down]

HIGGINSON, Thomas Wentworth *Out-door papers* Boston; James G. Osgood & Co.; 1871 [Down]

HILDEBRAND, Friedrich *Die Geschlechter-Vertheilung bei den Pflanzen* Leipzig; Wilhelm Engelmann; 1867 [CUL, S]
cc, cs, dic, ex, fg, hl, mhp, oo, rd, sp, sx, ti

NB p37✎; 28 abortion of Rag Floret of Compositae for ●; p20 Digitalis most fertilised by pollen first on closed stigma
1 *18–22m* **3** *10–12m, 20–22m, 24–26m* **4** *8–12m* **5** *10–19m* **7** *wt* Dioecious & Mon. plants flower in Spring, when little honey in other flowers *1–2m, 24–25m, 26–27m* **9** *23–25m* **11** *1–3m/wt* Consider Thyme a case of Polygamia *6–18m/11–25w* each kind of flower on separate tree → ash-♣ tree? **12** *7–10m* **13** *wt* It may be that lower plants have survived owing to having this advantage of separated sexes. *6–7u "mehr | zwittrigen"/w* Doubtfully Thinks Hermaphrodite earliest state *9–11m,*

HILDEBRAND, GESCHLECHT

11–12m/ 11–15w (a) Lower plants oftenest have separated sexes *30–31m* **14** *20–23m/ 21u "Mehrzahl", 23–24m* **15** *3–7m/4w* Sprengel *30m* **16** *14–17m (Sprengel), 18–24m, 27–28m* **18** *8u "Protogynische", 10–11m, 21–32m* **20** *12–16m* **21** *12–20m* **22** *13–17m, 18–23m* **23** *21–25m, 27–30m* **24** *9u "Protrandristen | Blüthen"/5–17m/w* Rudimentary organs *14–16m* **25** *13–15m* **26** *10w✏* p11 *11–14m/ 10–16w* In Thyme anthers of Hermaphrodite○ flowers developed before the pistil *14–17m✏, 16–29m* **27** *6u "alle | sind", 11–15m* **28** *14–25m/15–18w* Compositae *17u/wτ, 19u/wτ, 20u/wτ, 26–34m* **32** *1–4m, 17–25w* more dichogamous than non-dichogamous!! *wb* 2 divisions when anthers lie so close as to fertilise the stigma & when distant from stigma **36** *32–33m* **37** *12m, 12–13u "die | übertreffen", 19–22m, 27–34m/30–31x✎* **39** *23–33m* **40** *1–6md, 23–27m* **42** *1–10m✏* **43** *13–16m* **45** *3–6m, 10–15m* **48** *11–14m/5–20w* In Cruciferae, manner in which anthers open checks self-fertilisation **51** *1m, 5–7m* **53** *11–15m* **54** *fig.w* Viola tricolor **56** *12m, 20–34w* D does not know the self-fertilisation by movement of petals. **57** *17–21m* **59** *10–15m, 15–18m* **62** *19–22m/w* Does not Cyclamen self-fertil. **63** *7–9m, 31m/w* Borgni○ **67** *26–29m* **73** *20–21m/w* Dimorphic **74** *1–4m, 28–29m, 32m (Walz)* **77** *12–14m, 23–25m/w* waterflower *28–31m/w* come to surface *wb* instead of flowering under water, as we see is quite possible. **78** *14–16m* **79** *29–33m* **80** *1–28m* **82** *16–19m/1–20w* adduces Snails – I think must have been primordially self-fertile *13–16m, 12–20w* Thinks flowers are hermaphrodite to favour crossing – one to favour seeds.– like bulbs &c **84** *17–19m* **86** *13–17m* **87** *4–9m* **90** *4–10m, 14u "Alter | Gesetzes"/w* age of law

HILDEBRAND, Friedrich *Die Verbreitungsmittel der Pflanzen* Leipzig; Wilhelm Engelmann; 1873 [CUL, bound together with previous item, I]
ad, fg, gd, mhp, oo, phy, sp, sx, t, v

NB p5 & 6 List of authors on Means of Distribution
p36; p.80; 104; 107; 112; 114–117; 129 to 150; 155 to end
SB ⊶
p. 5 & 6. List of works on Means of Distribution.
36 fruits eaten by birds on trees – those which stick to furry coats on branches of Herbs (p.160)
80 fruits with Arillus (My case)
104. wonderfully many adaptations for scattering seeds fleshy fruits more open.
107. fruits which do not open have only 1 seed.
112. fruits do not become coloured or tasted until ripe. (Like calyx of Polygala) & shell of seed hard as a protection
114. good remarks on coloured fruit
116 wonderful economy in the means of distribution – nothing superfluous & vary 2 ways – confined to the female flowers
129 – Bears on what useless Q
144. Cases of same sp. with 2 means of distribution
145. Means often differ much in allied plants.
150 When many seedlings of same sp. struggle together all weakened, not different sp. kill each other more easily – & thus good of distribution.
151 & parents close interbreeding

2 *12–14m* **4** *11m* **8** *2m* **9** *zt* **13** *3m* **20** *20m* **26** *23m* **36** *1–7m* **41** *17m* **48** *8–10m* **52** *15–16m* **57** *21–23m✍* **61** *4u♠* **73** *3z* **79** *17m✍* **80** *2–11m* **90** *26–27m✍* **99** *25–26m* **101** *27–29m* **102** *22–25m* **104** *17–30m/w* all sorts of adaptations to scatter seeds *29m* **107** *1–2z, 3–5m, 23–31m, 33–34m* **112** *3m, 12–15m/14u "hervortretende"/ 15–16u "der | Geruch", 16u "angenehme Geschmack", 26u↔* **114** *18–22m/19u "Asparageen | Früchte", 25–29m* **115** *5–7m✍* **116** *3–6m/3–4u "an | Früchte", 24m/20–26w* Great economy in superfluous adaptations **117** *1–4m, 17–20m/17–18u↔, 23–31m* **125** *12z✍* **129** *19–26m* **130** *26–30m* **144** *22–34m/ 23–29w* on same Plant **145** *1–16m/w* Means of Distribution often differ much in allied Plants **150** *5–12m/1–34w* When seeds of same kind ♣ sown together all struggle together & all weak – not so when different kind for then the strong kill the weak **151** *22–26m* **155** *28–33m* **157** *11–14m, 18–20m* **159** *14–22m, 17–20m/21u "ausbilden | nicht"* **160** *3–4m/u↔/w* Hooker *6u "Vögel", 7–10m/7u "an | strauch"* **161** *8–12m/u±* **162** *wb* [When pollen is brought from a distance commonly – it is possible that means of distribution wd be less necessary C.D]

HILDEBRANT, Gustav *Die Verbreitung der Coniferen* Bonn; Carl Georgi; 1861 [Down] ℘

HINDS, Richard Brinsley *The regions of vegetation, being an analysis of the distribution of vegetable forms over the surface of the globe in connection with climate and physical agents* London; G.J. Palmer; 1843 [CUL, I]
gd, no, sp

SF ❑β
11 Greenland 2 species to genus
36 Species of European genera in Mexico distinct – like other alpine regions no peculiar Family & few genera (Like lakes & Arctic regions
48 Mountains of Brazil vitis, Galium, ♣, Gaultheria (Nothing)
54 Alludes to Pisidium or Guava at Tahiti – 62
62 Vaccinum & Fragaria on Sandwich Isd
63 – 47 species in Low Arch, belonging to 40 genera & 27 Families (small size few individuals & therefore not new species)
94 Relations of Abyssinia to Cape of Good H. Protea, mesembryanthemum
NB1 What has Schow written, who is so often quoted on Bot Geog.??
NB2 p.11; p.14 to end

11 *1–2m* **14** *16–20m* **15** *2–7m* **17** *17–20m* **20** *27–28m, 28–29m* **22** *27–29m, 30–31m* **24** *16–17m* **25** *4–7m* **27** *12–13m, 16–18m* **30** *13–19m* **36** *8–9m, 13–14m/12–18w* Contrast this with species being same further north; also T. del Fuego *17–19m/u "It | genera"/9–16w* so lakes & Arctic regions *21–23m* **39** *6–11m/7u "stronger | than", 18–20m* **41** *17–19m* **43** *23–32m/27u "ribes, rubus"/28u "andromeda"/29u "vaccinium"/30u "berberis"* **44** *20–22m/21u "of | abies"* **47** *21–34m/24–25☞/26–31w*♦ No European forms *wb* see to this **48** *6m/7?/4–5w* not species **49** *20–24!/22–26m* **54** *14–17m/12–20w* compare with mountains of Brazil p148 V. Von Martius *27–28m* **58** *10–13m, 15u "ribes | vaccinium", 17u "salix", 18–20m, 23m, 28–31m* **62** *1–2m, 16–17m, 31–34m* **63** *13–15m, 27–33m* **64** *1–2m* **68** *7–10m* **71** *1–3m* **74** *15–18m, 28–34m/w* some of these are American ∴ ought they not to be considered mundane **79** *17–20m, 20–22m* **81** *13u "salix | viola"/w* mundane. *18–19m* **82** *26m* **83** *9–11m/11u "stronger | India"* **87** *26u↔, 31m* **88** *24–29m* **90** *10–12m* **94** *20–22m* **98** *15–18m* **101** *9–12m* **102** *4–8m, 12–13m* **104** *1–4m* **115** *23–28m* **117** *32–34m* **119** *1–10m* **121** *14–19m* **122** *11–15m* **125** *9–12m* **128** *4–5m/4u "dwarf | stunted"/w* so in Himmalayah **130** *15–18m/15u "Sempervivum"/17u "sedum"* **133** *19–25m* **135** *17–18m* **136** *16–20m/17w* odd *27–34m* **139** *7–10m, 29–31m*

HITCHCOCK, Edward *Final report on the geology of Massachussets* 2 vols.; Amhurst; J.S. & C. Adams; 1841 [Down, I] ℘

HOCHSTETTER, Ferdinand von *Reise der Österreichischen Fregatte Novara um die Erde ...* 1st vol., 1st and 2nd parts separately; Wien; K.K. Hof & Staatsdruckerei/ Karl Gerold's Sohn respectively; 1866 [Down] ℘

HODGE, Charles *What is Darwinism?* London and Edinburgh; T. Nelson & Sons; 1874 [Down]

HODGSON, Shadworth H. *The theory of practice* 2 vols.; London; Longmans, Green, Reader & Dyer; 1870 [Down, I] ℘

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HOFACKER, J.D. *Über die Eigenschaften welche sich bei Menschen und Thieren von den Eltern auf die Nachkommen vererben, mit besonderer Rücksicht auf die Pferdezucht, mit Beiträgen von F. Notter* Tübingen; G.F. Dsiander; 1828 [CUL, on B]
beh, br, cc, cs, fg, h, he, pat, phy, sp, sx, tm, ud, v, y

SB Hofacker
10 on Heredetary colour of Horses; when forefathers for some generations of same colour, more easily transmitted. p94
15 on confining of animals of 2 colours & offspring taking after one or other NQ
34 on handwriting heredetary Q✍
83 of Hybrid NQ canaries Birds propagating for 4 generations: inter se? Q♦
98 on changes of colour in calves from parents of two colours. with age Q✍
107 on stags with one horn, producing a Family of. Q✍

7 *27m* **8** *1–8w* Shape of hoof &c &c hereditary **10** *1–6m/5–10w* approximate colour *12–13u "dem | seyn", 23u "nur | sich", 27–28m/28u "5.87"/wb* colour of forefathers appearing easier in colts **11** *1–5w/wt* Horses of different breeding establishments of different colours **12** *wt* Chestnut appeared when neither parent chestnut *7u/wτ, 8u/wτ, ⟨u: "Goldfuchs" and "Hellfuchs"⟩ 10u, 11u, 13u, 14u, 15–16m/u, 18m* **13** *17x*✎/Q✍/*w* Chesnt *11–27w* cases of new colours appearing **14** *7–8u "braunen* | *Braun"/7–11m/w* brown mare always bore chesnut foals *17u "Mausrappen", 17u "Braunen"/16–19w* Mouse-black from black & brown *26–27m/w* piebald **15** *1–6w* not so with Horses *8–11m/w* like Hollyocks *13–14m, 15–23u±* **16** *1m* **17** *6–11w* great tendency (without white young destroyed) for all animals to become white – **23** *7–8w* Mulattos smell like Negros *22–26m/w* odours of different parts of body hereditary **24** *4u "Rheumatismen* | *Catarrhen", 25–27m/18–27w* when both parents fat young fat very early. **25** *16m/u↔* **29** *12–16w* great strength hereditary **30** *wb* Genius not hereditary – [How many qualities together make Genius!] **32** *3–13w* Hereditary genius *23u "Bach* | *50", 24u "Bernouilli"* **34** *8u "Handschrift"/6–15m/w* handwriting hereditary **35** *4u "Brugnone"/1–7m/w* recommends starting horse not to be bred from. *14–22w* cross of pointer & shepherd dog, after many generations when become like sheep dog still pointed birds **36** *21–29w/wb* short & high heredetary (produced by manner of life) **37** *8–10w* diseases of eye hereditary in horses. **39** *21u "Grösse* | *Geschlechtstheile", 23u "leicht* | *gebären"/22–23w* facility of birth hereditary **43** *1–2m/w* 20 female cats for one male **60** *15m* **80** *1–13w* sex of plants influenced by conditions **83** *17–18m, 29–30m* **84** *8m/w* genera *18u "Perlhahn", 19m/u "Haushenne", 20u "Jungen der", 25m/w* gen **89** *6u "Absicht* | *Grösse", 10–11u "Junge* | *Zebra" 6–12m/w* hybrids of one kind resemble father & of other kind, mother *12–13m, 21m, 27–29m/w* Fineness of Hair after father **90** *8–9u "Den* | *Vater", 11u "Den* | *Mutter", 13u "Die* | *Vater", 15u "Mutter* | *Ohren", 18u/wτ, 23u "Schweif", 23u "Mutter"* **91** *2–4m, 6–11m/8–9u "Zahl* | *überwiegt", 11u "7:2", 12u "3:1", 13u "16:3"* **93** *3–4m, 14u "keine Bastarde", 20–25m/23u "Statur"/24u "Länge* | *Beckendurchmesser", wb* Pelvis **94** *wt/1–24w* stallions transmit qualities more than mares. because generally former of long-continued good breeding but mares are less so & crossed. *16–25m* **96** *7md, 8md, 11–14m, 15md, 19m/u/wτ* **97** *wt/1–5w* Duns hereditary colour – but these are picked cases of hereditary transmission of colour ⟨*u: colours in 3rd column*⟩ *3m/u, 6u, 8u, 9u, 10–12m/12u, 22u, 23m/u, 27–29m* **98** *19u±, 20u±, 23–24m/u±* **99** *4–5m, 14–15m* **100** *3–4m, 6u "Männchen"* **101** *6–9m/w* men affected by producing <u>one</u> mule **102** *22–25m/w* children like first husband **105** *19–20m/u "oder* | *haben"* **107** *8–9m/9u "Burdach", 11u "Nabelbruch", 13w* Hare-lip *21–25m/w* one-horned stag Q✍, 26Q✍ **110** ⟨*u = names of diseases*⟩ *13–23m/13u/14u/18u/19u/20u/21u, 22u/22–23u, 24–27m/24u/wτ, 25–28w* tendency to bleed on small hurts **111** *7u "Roz"/w* glanders *9–10u "Exostosis* | *tarsi", 11u "Exostosen", 20u↔* **112** *9m, 23–28m/26–27u "weder* | *Schauher", wb* discussion on hereditary venereal diseases probably, when from father, not actual mother. **114** *16u "nur* | *Vater", 17–18u "nur* | *nachkommen"* **123** *22–24m* **130** *8–13md/8u "nur Raçen"* **140** *3–18w* many old nations married their near relations

HOFFMANN, Hermann *Zur Speciesfrage*
Haarlem; De Erven Loosjes; 1875 [CUL]
cc, che, cs, ds, fg, gd, he, phy, sp, sx, t, tm, v

NB All abstracted
p.53 Papaver somniferum self-fertile
p66 On Causes of Variation & Range of Viola lutea & tricolor
11 Adonis aestivalis self-fertilised prot-androus
<u>Look over, some references for Good for crossing</u> Book
p4 What he considers evidence of specific form ! p27
7 causes of variability
8 Reversion
17 on the form of Anagallis blue & red arvensis cd not cross them !
22 Range of & differences of –

3 *18–21m/w* no – Cytisus adami **4** *12m, 21–23m/22u "Blosse* | *Nachweis"/13–27w* It comes to this that without direct evidence of descent from 1 to other forms must be considered as species! Blood Hound & Fox Hound ♣ **7** *1–5m/w* external conditions do not influence when no relation to chemical nature of soil.– *9–23m, 24–25u "sondern* | *Erscheinung", 26m/u "unabhängig* | *Impulsen"/24–36w* Excites not direct cause !! like an illness excited on effect of a poison which I have said **8** *13–14u↔, 12–17w* thinks reversion prevented by successive changes of structure. **11** *24–27m/24w* Adonis **17** *13–15m, 17–21m, 29–34m/w* did not cross **18** *6–10m/6u "Bemühungen* | *kreuzen", 26–34m, 27–31m* **19** *2–7m, 11m, 14–17m/w* crossed with no result *30–32m/31u↔* **20** *5–6u↔, 11u "isochronisch"* **21** *29–31m* **22** *2–4m/3u "sich* | *decken"* **26** *30–32m* **27** *wt* yellow berry holly also nearly constant ∴ according to his rule a species! *3–4m/u±* **28** *3–7m/w* reverted to parental & typical form *22–24m/w* only evidence that it is a var. is above **30** *34–37m* **32** *7m* **43** *31m* **46** *22–26m* **47** *23w* Papaver alpine *24–37m/27–30w* Covered with net *37*→ **48** *3–10m, 14–17m/15u "anscheinende | bei", 17–21m/w* Protandrous state variable **50** *24m* **53** *28u "Selbstbefruchtung | kann", 33–34m/33u "keimten sie", 35u "72 | producirten"/34–38m* **59** *5–7m* **61** *16m* **66** *2–4m* **68** *12–20m, 23–26m, 37–38m* **69** *19–22m* **70** *4–7m*

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NB not read

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fg, tm

NB 439; 406 pollen-tubes of Conifers; 415
℘

280 *26–29m* **284** *1m, 11–13m* **285** *7–9m/8u "third internal"* **286** *1–2m* **287** *5–7m, 12–13u*↔ **289** *1–5m, 20–23m* **290** *14–16m, 32–36m* **293** *17–19m, 27–29m* **294** *28–30m* **295** *2–5m* **296** *27–31m* **297** *8–11m/w* archegonia **298** *2–3m* **299** *22–25m, 36–39m* **406** *15–20m* **415** *12–17m, 18u "endosperm", 19–21m/21u "end | second"* **439** *13–22m*

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beh, y

NB Chapter on instincts – (Notes & References in M.S. notes –) Nothing Else.–
234 Family trait long inherited
214 change of ♣ sobbing in child; & so with laughing, pain primary
223 Habit, good

91 *24c/w ⟨not CD⟩* **201** *5–8m, 24–26m* **203** *2–4m* **204** *17–20m* **205** *6–7m, 10–13m* **208** *27–31m* **209** *12–14m* **210** *26–30m* **211** *11u "automatic | action", 12u "from instincts", 17u "congenital propensities"* **213** *18–21m* **214** *23–28m* **216** *33–35m* **220** *11–14m* **222** *8–10m, 27–32m (De Candolle)* **223** *1–5m, 28–31m* **224** *19–22m, 24–25m* **234** *5–11m, 27–29m/*Q **244** *21w* instrument

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beh, mhp, t

NB p.79–114
111 Effect of attending to any part
237 Habits in plants
239 do to quote Habit & Instincts compared
p212 Read whole Chap of Instincts & Habits

79 *16–17m (J. Müller)* **81** *2–4m* **83** *4–8m, 23–26m* **85** *28–31m* **86** *23–25m* **87** *15–17m* **91** *14–18m/15w* 193 **93** *4–6m* **104** *17–29m, 23–27c, 29–31m* **105** *1–6m* **106** *6–9m, 14–19m* **111** *15–20m/15u "effect | circulation"/16u "suddenly directed"/17u "often | immediate"* **228** *22–28m* **237** *23–30m* **239** *5–13m* **246** *29–31m*
℘

HOLLAND, Henry *Essays on scientific and other subjects* London; Longman, Green, Longman & Roberts; 1862 [Down, I]

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beh, he, pat, phy, sx, y

SB ❑β
10 Strong sentence on Heredetariness – 22
18 Child most like parent in feature &c inherits its diseases
20 Hydrocele transmitted through female
25 Form of hereditariness occurring in children & grown up people at same age
33 Disposition of members of same Family to be affected similarly under like Maladies
35 Hereditary diseases appearing at same age

x *25m/c/w~~c~~, 27m* **xi** *3m, 5m, 9m, 11m, 13m, 15m, 24m, 26m* **1** *10m* **10** *10–17m, 24–28m/"..."* **13** *10u/10–11m (Whewell)* **16** *7–23m* **17** *15–21w* faulty texture of skin, hare-lip stratismus○ all hereditary **18** *4–8m, 9–10m, 10–13m, 19–23m* **19** *2–16m, 30–32m* **20** *5–7m, 9...], 20–27w* blindness often hereditary gives cases also deaf & dumb. *32–33m* **21** *wt* disease of heart hereditary, 4 brothers died between 60 & 65 – another case in their generation – obesity hereditary – cutaneous diseases hereditary – *7–8m/w* case of Patella was wanting to father & son. *10–15m, 18–25m, wb* are men more exposed – hence Rheumatism & haemorrhage?? more intemperate.– hence gout.– **22** *10a "effect"/4–10m/w* Pellagra of Lombardy gives Reference *20–23m/"...", wb* Diabetes. Prout & Co ♣ Self say hereditary asthma. **24** *22–24m/25–28w* enlarges this strongly *wb* Suicide seems on sufficient evidence to have tendency to become hereditary Pinel Dr Rush D Burrows **25** *1–31w* Chomel rates as high as half proportion of rheumatism cases where patients have suffered *21–24m, wb* Make some remarks about diseases, not connected with particular stimulus, being hereditary, as gout, scrofula. ♣ **26** *wt/1–26w*•◇ I presume more men, than women are subject to gout, to ♣ rheumatism & to haemorrhagic tendency? *1–2m, 12–15m, 29–33m/4–34w*•◇ Consult this.– to see whether predisposing causes act chiefly during manhood, as in gout, in relation to secondary male character *wb* speaks of <u>cases</u> where a child escapes hereditary. disease (& likewise resemblances in countenance) for one generation **27** *28–32m* **31** *23–28m* **32** *1–5m* **33** *24–30m* **35** *1–10m/x, wb* x Boerhave gives cases of schirrus, icterum & melancholia, at certain age in same family **36** *29–33m* **37** *wb* H. says looking over works of Morgagni gives many cases of hereditary diseases to which he incidentally refers. **65** *8u "attention"/10u "direction | consciousness"/8–10m, 22–25m* **66** *1–5m, 13–15m* **67** *3–7m, 16m, 22–24m* **68** *2–5m* **69** *1–3m* **70** *8–10m, 20–22m* **323** *wt◊* These muscles which are subject to involuntary action (so eyelids & eyebrowO) are not subject to Pulse.

HOLLAND, Henry *Medical notes and reflections* 3rd edn; London; Longman, Brown, Green & Longmans; 1855 [CUL, I]
beh, hl, in, pat, phy, ta, y

NB1 276 Mind & Body cannot work hard at same time
NB2 19♦
24♦ Wonder that all not inherited
31 Hydrocele per female
inheritance at corresponding age & in same Family – 33 Ask – 44 good
♦ 36; 40

xiv *3m* **5** *10–11m* **9** *8m, 32a "way", wb* as to the duration of Life, and the influences upon health of individuals & communities the various physical & moral conditions to which they are submitted **11** *4w* fully **12** *14–17w◊, 24–31w◊, 30c/w¢* **13** *23–24m* **19** *11–14m* **24** *14–16m* **31** *25–29m* **32** *6–9m* **33** *1–2m/w* at early age? *7–9m/w* eyes *19–21m, 22–24m* **35** *28–30m* **36** *26–29m* **40** *30–32m (Chomel)* **41** *1m, 16–18m* **42** *2–3m* **43** *14–15m/w* 49 *16–18m, 21–22m* **44** *wt* When peculiarity appears in several members of family without having occurred in parents it is clear comes on at same age – and it is form of inheritance *1–2m, 5–6w* same age *6–10m, 13–16m, 22*Q✍, *30–32m* **45** *25–27m* **49** *1–5m* **50** *21–25m, 28–33m/29u "certâ | schirrum"/31u "icterum"/33u "certâ aetate"*
℘

HOLLAND, Henry *Recollections of past life* London; Spottiswoode & Co.; 1868 [Down, I]

HOLUB, Emil *Seven years in South Africa* 2nd edn, 2 vols.; London; Sampson Low, Marston, Searle & Rivington; 1881 [Down]
℘

HOLUB, Emil, and PELZEN, August von *Beiträge zur Ornithologie Südafrikas* Wien; Alfred Hölder; 1882 [Down, I]

HOOKE, Robert *Micrographia* London; James Allestry; 1667 [Botany School, pre-B, ED, FD]

3 *19–21m*

HOOKER, Joseph Dalton *Botany* London; Macmillan & Co.; 1876 [Down, I]

HOOKER, Joseph Dalton *The botany of the antarctic voyage of H.M.S. Erebus and Terror in the years 1839–1843: 1. Flora antarctica* 2 vols in 1 binding; London; Reeve; 1844–47 [CUL]
af, ds, ex, gd, ig, in, is, no, oo, phy, sp, sy, v

SB ❑β
Hooker Antarctic Flora
1 Auckland & Campbell Isld – Arctic Plants (G)
4 Ranunculus with hooked seeds – curious variety
23 case of wide difference in proportions of Nat. orders in Falkland & Aucklands
30 case of plant common to highest mountains of New Zealand (G)
53 Myrsine common to Cape. Abyssinia & Azores

56 Gentiana eminently alpine & yet not common ♣ N & S low-lands
61 Veronica with 3 stamens sometimes
62 Remarkable variations Ch 4
73, 74 No alpine plants in S. p.74 (Gl.) North much richer in species than the S. – even in S. America – 75 N. Zealand very poor Flora, contrast with Australia–
97 One Arctic group common to S. varying in N. but not in Campbell Isld N.B I notice in Webbs Canary isld that often only one form of a varying plant is there found
114 A species varies more in one country than in another p.271, p115 or not varies in one
116 Variation Ch. 4 varying in one country more than in another
211 All Antarctic Lands take after T. del Fuego, except Auckland & Campbell Isd –
217 Plant extinct at St Helena between Hookers 2 visits Few species to genera generally in isld
246 True Arctic plant or representative in T. del F. p.280 do
268 Acaena with beautiful hooks confined to Kergueles Land &
275 Wandering species ✍ from Australia.– exiled sp of Decandolle
276 On representatives & identical species going together 277 On relation of number of individuals to species 278 Very good cases
288 Plant constant in leaves in Falkland, very variable at R. Plata
306 A form from one country unites two in another country
315 On confined range of Senecio species, yet genus very large range
327 American Epacris, very distinct form.
387 Tussack group so eminently fitted for cattle as to be on road to extermination in country where no quadruped (Hooker) often Hooked seeds
390 At Chonos Isd the flora unite but Dr Hooker remarks no blending of forms as if from descent Ch.6.
549 On affinities of Lyallia of Kerguelen to Bolivian Plant

vi *18–19m/19u "Crozet | volcanic"* **vii** *15–16m/15u "vast | continent"* **2** *32–36m/w* great difficulty **4** *13m/u "uncinati"/w/* V. Plate *15–17m, 20–22m/w* var. *41–43m* **5** *35–39m (H.C. Watson)/36–38u±* **7** *4m* **10** *6–8m, 16–17m* **11** *6–7m, 12m, 22u "species | one", 33–34m* **13** *5–7m, 9–11m, 17–20m, 38–39m* **15** *10–12m, 28–29m/28u "decidedly | form"* **18** *13–15m* **22** *41–42m* **23** *3–10m* **30** *25–26m* **33** *2–7m* **35** *16–22w* Mr Norman not to be counted with varieties – nor any species introduced as notes **37** *25w* not count. in Norman **39** *25–27m, 43–45m* **40** *24–26m* **53** *3–8m (De Candolle)* **54** *21–27m* **55** *26–30m, 28–30m, 31u "Indeed | genera", 33–35m/34u "confined | Andes", 41u "blue-flowered"* **56** *1–2w* How alpine a genus! *3–8m, 9–11m, 14–15m* **57** *6–11m, 41–44m* **58** *11–17m* **61** *7–8m, 10–12m, 33–35m* **62** *9–17m, 9–12m, 14–16m/16u "3-valved"* **66** *37–40m* **67** *6–9m, 11–13m, 20–22m, 33m/w* var *41–42m* **73** *36–43m/40u "on | occur"/w* explain **74** *1–5m, 6–11m, 12–15m/13w* whence paucity *21–25m, 28–31m/w*♦ S. America even isolation compared *39–44m* **75** *1–3m, 10–12m, 14–15m, 16–18m, 21–23m, 26–27m/26u "exuberant | necessarily", 29–30m* **78** *4–9m* **80** *27–29m* **82** *4–8m* **83** *1–4m* **85** *16–17m/16u "most | L.", 20u "L. | Tasmania"* **90** *20–23m* **92** *37–38m* **97** *14–15m, 17–18m, 19–21m, 24–28m* **101** *34–36m* **103** *25w* Mr Norman end here **104** *21–23m* **106** *1–3m* **107** *15–16m, 35u "500 miles", 40–42m, 44–46m* **109** *32–37m/33u*♠ **111** *24–27m* **112** *11–14m, 21–22m/21u "natural | cannot"* **113** *wt* Mr Norman nothing to be counted in this part *16–17m, 25m, 34–35m* **114** *6–9m, 25–30w* This Lycopodium may have travelled along Andes **115** *3–5m/4u "like | does", 27–28m, 41–44m/43–44u±* **116** *7–8m, 14–15m, 17–18m, 31–32m, 35–36m, 46m* **117** *7–8m, 9–13m, 16–21m, 23–25m, 26–27m* **118** *7–9m* **119** *15–16m* **124** *38m* **126** *37–39m* **127** *22–23m* **129** *wt* Mr Norman, nothing to be counted in this Part **132** *18–21m* **134** *8–9m, 15m* **141** *11–12m* **145** *wt* Mr Norman not count this part **146** *10–13m* **162** *3–5m* **167** *16–18m* **169** *31–32m* **209** *8–10m* **210** *1–4m, 1m* **211** *4–7m, 9m, 15–16m, 20–22m (Humboldt), 22a "west"/u "west | stream"/w* East *24–25m/25u "Gmelin's 'Flora Siberica'" 27u "approximated | geographical"/w 1000 miles 29u "flanks | Himalayah"/30u "Tristan | Cape"/29–31m/w* not flanks, but opposite side of continent *33u "Sandwich"/w* in Labiatae & Lobeliaceae *39–42w/wb* actually same species? very good yes Have a list *40–41m/u±/w* Cynocusus○ a grass **212** *21u "North | Antarctic"/w* Panama? *23u "granitic"/?, 36–37m, 39–40m* **213** *28–29m* **215** *21–25m/?/w* do not understand **216** *23–25m, 25–27m/27u "twenty | plants", 29–32m/29m/29–30u±, 36–38m/37u "16,062 feet"* **217** *2?/u*♠*, 5–9m, 22–24m, 26–27m, 30–32m, 34–35m, 35–40m, 37–40m* **219** *16–23m/18?/u "Colobanthus" "fossil"* **221** *33x*✎*/u* **223** *28–33m* **224** *26–28m* **225** *10–12m, 26–27x/26u "This | plant", 39m* **227** *9w* var *33–36m* **228** *18–20m, 40–41m* **229** *33–39m* **230** *8–9m, 14–17m, 21–23m, 24–25m, 26–28m, 29–31m* **231** *31–32m* **232** *26–28m, 28–29m, 39–42m* **233** *1–4m, 31–32m, 35w* not count as var. **240** *21–25m* **241** *15–16m/16u "American Andicola", 30–35m, 37?/u*♠ **242** *1–4m, 6–10m (De Candolle), 22–23m, 34–35m* **245** *32–40w* This is first European genus with no evidence of other species on Cordillera of Chili or Peru **246** *4–5m, 21–22m, 26m, 27–28m, 35–36m* **247** *6–9m, 9u±, 11m, 15u "excluded North", 33m/w* var, 37–41m **248** *10–12m, 43m* **250** *27w* var *29–30m* **251** *1–9m/14w* var 2 *18–19m* **252** *20–22m* **253** *3–4m, 8–12w* I think these are Oxalis in the Cordillera of Peru *27w* var **259** *12–13m, 30m* **260** *1–2m, 8–10m/7–12w* I suppose not found in intermediate districts *25–26m, 32–33m/32u "maritime", 35–37m, 38m* **261** *3–5m, 9–10m* **262** *13–14m, 21–25m, 34m* **263** *26–27m, 39–41m* **264** *3–4m, 13–14m* **267** *38–39m* **268** *2–5m, 18w* var. *19–20m/20u "South Georgia", 38–41w/wb* A plant with hooked seeds confined to Kerguelen Land. V Plates beautifully hooked. **270** *6–7m/w* var *31–33m, 42–43m* **271** *1–2m, 4–5m, 16m, 20m, 23–25m, 26–27m* **272** *1m, 7–8m, 13–22w* another case of plant skipping the intermediate parts of S. America. *28w* var. I *40m* **274** *5m/a "another"* 3d *8u "even|rudiments", 32u*↔, *38m/u "same species"* **275** *25–28m, 35–37m/36u*♠*/w* large range *36–37u*♠, *39–40m, 41m/m, wb* This not holding in Birds, is argument against much accidental transportation **276** *3–8m, 9–12m, 30w* var *40–41md* **277** *9w* var *37–39m/w* it may be if all individuals of all the species be counted. **278** *2–3m, 5–7m, 8–12m, 19–20m* **279** *5–6m* **280** *22w* var. 3. *27–29m/29u "of|America", 34m, 39–40m* **282** *20–21m/21u "in|flowers"* **284** *21–22m, 30–31m/30u±, 37–38m* **285** *3m* **287** *21–23m, 25–26m, 31m* **288** *4–6m, 7–8m* **289** *wt* Nothing marked in this Part **302ii** *8–9m* **303ii** *24m* **305** *16–19m* **306** *1–3m, 16w* 2 vars *18–19m, 20–21m, 25–27m, 28–29m* **307** *23w* var. 1 **308** *33–34m* **309** *14w* var 1 **312** *26w* var I **313** *2w* var 1 *12w* var 1 **315** *17–21m/19u "both|flowers", 22–25m, 31–33m, 36–38m, 38–39m* **317** *8–9m, 9m, 12w* var **322** *32w* var **323** *8w* var *32m, 35m* **324** *10–11m, 19–20m/!* **326** *31w* var 1 **327** *22m, 37–39m* **328** *2–4m* **329** *19w* 1 species *36w* do not count this **331** *1–5m, 26–28m, 40–44m* **334** *12–14m/w* water-plants *21–24m/23u "perhaps"* **335** *23–26m* **336** *1–3m, 30–32m* **337** *16–17m, 27–30m, 35w* var **338** *27–29m* **339** *1–2m, 9w* var *12–13m, 29w* var 2 **340** *wt* Though we cannot explain same species common to Australia & Fuegoe yet the generic conection is in harmony –: hence the identity of some species with Europe is in itself probable *1–2m, 14w* var. 2 *24w* 4. **341** *17–18m* **343** *14–16m* **344** *36–39m* **345** *15–19m* **346** *13–16m, 17–*

21m **347** *14–16m, 19–20m* **352** *38w* var 1 **354** *19–21m, 39–40m* **361** *8w* var **363** *28–30m* **368** *6–9m, 25–29m, 32–36m* **370** *1–4m, 35w* var. 1 **372** *35w* var **373** *17w* var 1 **378** *7–11m* **379** *11w* var 5 **381** *34w* var 3 **382** *23w* var 3 **384** *19w* var I **386** *17–20m* **387** *1–7m* **389** *15w* var 4 *25–27m, 33m/w* Mr Norman end here **390** *16–20m* **391** *34–36m* **392** *31–33m* **393** *10–12m* **394** *23–25m* **395** *17–18m* **457** *17–29m* **543** *7m, 9m*

HOOKER, Joseph Dalton *Himalayan journals* 2 vols.; London; John Murray; 1854 [CUL, I in vol. 1]
af, beh, cc, ch, gd, geo, gr, oo, no, sp, t, ti, tm, v

vol. 1 NB See index for case of coloured Ticks.–
24; 28; 30; 101
109 – Tropical & temp vegetation
159; 248 Glaciers; 257 Cedar & Deodar; 293; 314 – Cocks crow; 380; 400
p221 – Poa annua & Shepherd's purse 314; 380; 400; 221

24 *4–9m* **28** *6–8m* **30** *31–33m* **38** *5–21m* **101** *28–31m* **109** *14–16m, 24–27m, 30–33m* **159** *28–30m* **221** *6–10m, 23–25m* **248** *29–33m* **257** *5–7m, 24–37m* **293** *30–34m* **314** *8–10m* **342** *26md/a/w*♦∉ **380** *18–23m* **398** *10–24w* about 500ft♦ 262ft see 440 vol 2. *24–34m/31u "of|English"/34c "Dioscorea"/33–34u "Saponaria|Dioscorea", wb* 2 not English **400** *10–14m*

vol. 2 SF ❑β
p18 Mixture of Tropical & temperate plants
p39 & N. American genera & Japan.
25 Himalayan Reptile allied to N. America p.305 do
67 gathered 47 plants without rising – 30 average in England – alludes to struggle.
92 few Mammals in moist cold atmosphere.
96 Bengal Toad rise to Tungu – a good height Q
255 Rose on plain of Bengal – Salix in Terai, shows how little form related to climate Q
280 Khasia flora richest in India, owing to very various sites
281. ♦ Primrose & cowslip not one species on Khasia mountains (Hence very ancient according to my view & hence probably aboriginal) some change at early period of growth
302. A judge will tell whence Elephant came (Ch. 4)
336 Stylidium an Australian genus with 1 species here.

NB1 Mixture of Tropical & tem plants – p.18
25; 26
On mixture of European, N. American & Japanese forms 39
57
67 – on no. of plants in limited species
92; 96; 150; 255; 281; 302; 305; 314 flowers under water; 312.& 317
Mixture of Tropical & temperate plants – 319
333; 336; 415
p.281 On Khasia range H. speaks of Primrose & Cowslip!
◆ p251 & Poa
NB2 p38 rippled sand

18 *24–30m* **25** *31–34m, 34–39m* **26** *31–34m* **39** *1–4m, 6–25m* **57** *24–27m* **67** *24–27m, 31–36m* **92** *4–11m, 16–21m* **96** *19–23m* **150** *12–16m/12u "double"/14u "twins"* **255** *20–26m* **281** *6–8m, 32–33m* **287** *9c/w∉* **302** *6–18m* **305** *21–27m* **312** *6–7m* **314** *26–36m* **317** *30–31m* **319** *28–33m* **333** *15–21m* **336** *11–13m, 25–27m* **415** *9–25m*

HOOKER, Joseph Dalton *Introductory essay to the flora of New Zealand* London; Lovell Reeve; 1853 [CUL]

HOOKER, Joseph Dalton *Memoirs of the geological survey of Great Britain* vol. 2, part 2; [CUL, I]
gd, geo, ig, no, phy, v, y

SB1 ❑β
399 Tasmania 200 miles long has four times as many flowers as New Zealand 900 miles long (& higher mountains)
410 Venation generally very important in Ferns; but differs in older & younger forms of some species – kind of transition – Ch. 8
SB2 ♣
Prelim good – upright ferns but distinctly large separated
Ferns drifted being greatly objected to by whom.– Why not allude to Bunbury & Lyell on N. America
I valuated○ the Owen
Most interesting indeed quite amusing
Whole Plates
I wonder you do not suggest aquatic plants appear to meet so well all the same case with leaves of fern & cones–
⟨*over*⟩ 391–392; 399; 410; 429; 437

title page *w* Hooker Carboniferous Plants n.d **391** *18–21m* **392** *5–9m, 17–19m* **399** *15–17m* **410** *24–29m, 30–33m* **411** *2–3m* **429** *29–33m* **437** *29–39m*

HOOKER, Joseph Dalton *On the flora of Australia* (introductory essay to flora of Tasmania), London; Lovell Reeve; 1859 [CUL]
cc, ch, che, co, cs, gd, geo, hl, ig, is, no, oo se, sl, sp, sx, t, v, wd

SB1 ❑β ⟨*24 sheets*⟩
I intended in this but to copy out all Falkland & T. del Fuego plants on parallel lines
⟨*lists of plant species and their sexes*⟩
⟨*on p.24 of lists*⟩ This list has been marked by Hooker for close species.– NB See what big genera are left out.– They ought not to have been left out for mem. highness.– But Hooker does not know Carex○ or Urocinia○ so these ought to be left out.– Leave out genera with single species.
SB2 ❑β ⊷
Hooker Flora of Tasmania
V. no two countries present all vars. of same sp. on common p.xiv
– But – marked vars. on confines of range
– simplest groups present most variable species
vi. more unstable than stable forms – social plants constant
vii no relation between isolation of group & closeness or definition of its species.
– Extinction allows us to define groups.
ix conditions of cultivation are not really unnatural
xiii one var constant. the other var. of same sp. variable.
xv. Flora of isld not nearest related to nearest mainland
xvi. great contrast between Hebrides & Fidji
xvii Effect of dampness in extending range of Tropical products
– Has used glacial hypothesis for New Zealand Mountains
xviii Fuegian species not entering Mexican table-land
xix to Geological succession – no progression
xxiv Many plants are higher (so-called) plants reduced.
On Highness & Lowness
xxvii Richness of Antarctic in forms – xxviii not so very peculiar a Flora as thought to be.
xxix Peculiarities common to same orders in diverse parts of world.–
xxxi on similar proportions in great groups (due to battle of life)
xxxiii xxxiv Relation to Africa – xxxv Invaders in S.E. Australia
xxxvi No of species to genera in Australia

wide rangers in Tropics – Hooker thinks not material to know Look to A De Cand – Again I suspect very few confined to hottest parts of Tropics. which might be expected from range in Australia & C. of Good Hope.– There must be discussion in Alp. D.C. on range of Tropical plants compared to temperate.– if the range were given N. & S it would be best.– But America from Atlantic Ocean complicated problem.– **xlix** *15–18m* **l** *3–7m, 7u/9u♠, 10u "Malayan Peninsula", 13–16m, 20–23m, 26–28m, ⇑7–2m, ⇑3–1m/⇑2–1u "great | genera"* **li** *8–11m/w* most favourable in conditions & larger *12–13m/x, 17u "1700", 20–21w* Eyre'sO desert between *⇑12w* wonderful **lii** *"Acacia".w* 82/133 sp. *"Eucalyptus".w* 55 **liii** *18–19m, 22–23m, 25m/w* in S.E. a much more mixed & imported Flora **liv** *1–4m, 17–20w* (a) One intruding dominant form might well destroy several closely allied representative species. *⇑21–20m/w* (a) *⇑21–20u "It | area"/m/x/w* yes because dominant forms wd only invade the land.– *⇑16–12m/w* was not S.W. corner an archipelago with representative species like Galapagos or Madeira & P. Santo with respect to land-shells??? He hints at this further on. *wb* Indian Tropical plants formed in big area & fitted for Tropics & not for temperate parts have invaded & almost exterminated Australian Flora of Tropics.– Further on states that Indian Flora (as distinct from Malay) is formed in low part of Malay Isd *wb* (a) Pampas & N. temp. Europe & Siberia are all lately tenanted lands by dominant species & are not number of species few?? Perhaps different case altogether **lv** *9?, 16–19m, ⇑5–1m* **lvi** *⇑20–19m* **lxxxiv** *3–4m, 15–17m, 19u "fully one-fifth", 20u "one-tenth", ⇑21–18m, ⇑14–11m* **lxxxv** *2–5m, 14x, 18–19m, 23–25m, ⇑15–11m, ⇑9–5m* **lxxxvi** *⇑3–1m* **lxxxvii** *6–9m, 11–13m, 15–17m, 18–19m/w* This looks again as if S.W. corner was original focus of Australian forms *⇑21–20m, ⇑18–1m/w* very striking looks to me conclusive that never continuous land.– x *wb* x we can with some probability suppose that plants wd have marched along continuous land– but we know hardly anything about march across seas.– **lxxxviii** *9–12m, 15m, 19–24m, 25m/u "eastern", ⇑9x/w* it looks as if more transport during Glacial Period – Icebergs *⇑12–10m/w* dominant invaders **lxxxix** *5m/u "theory | migration"/w* You do not know effect of Salt-water on the seeds.– *10–11m/w ?* I do not understand *15–18m, ⇑3–1m* **xc** *1–2m, ⇑2–1m* **xci** *⇑9–6m* **xcii** *2–5m/w* some excessively ancient connection **xciii** *7x/u "220 | genera"/w♦* Hooker believes only few *8a "are"/wt* almost exclusively *4–6m, 7–11m/w* But I suppose many found in Tropics??? – see p.xcviii for same question **xcv** *wt/1–15w* I wish I knew which of these genera are not found in lowland Tropics & include species representative of those f in northern Europe or N. Asia for on Glacial view these have been modified since Glacial period. (next page 38 identical species are given) It has always been my greatest fear that there has been so much modification since Glacial, that it wd. upset view.– Some few genera may formerly have been mundane & Tropical & not now so.– *↕w* For Glacial strike out all those marked Trop. Strike out those marked with * Are many of these genera monotypic like the identical species – ?? Water plants ought ♣ perhaps to be struck out – no. not so if not found in Tropics. X This mark means species identical with Europe (♣) but the water plants not struck out. because not marked by Hooker **xcvi** ⟨*similar markings, no w*⟩ **xcvi–xcvii, SA** ⟨*note for Hooker, 8 April 1860 on numbers of supposedly post-Glacial genera not found in Tropics but common to Europe and Australia*⟩ **xcvii** *3u "38"/w* These plants immigrated during Glacial period.– *"Montra"x/w* Water *"Alioma"x/w* Water *"Glyceria"x/w* Water *⇑6–1m/w* Hooker says about 18/38 are monotypic *⇑2–1m/u "great | plants"* **xcviii** *1–14m, 2u "them | alpine", "Taraxacum".m/w* composi great range *tab.w* These genera I presume not found in Tropics? *wb♦* The species in S. Africa seem not to be identical – is this fact or want of knowledge of species are your facts taken from Drege? **xcix** *20–21m* **c** *1–4m/w* Arctic Plants *11a "30"* Fuegian *14–16m, 20–22m, 22a "is"* doubtful *23–27m* **ci** *12–15m, ⇑9–6m,* ⟨*mark by FD*⟩ **cii** *2–4m/u "types | migrated"/w¢, 11–12?, ⇑14–12m, ⇑2–1m* **ciii** *↕m* **civ** *1–2m/u "and | Islands",* ⟨*mark by FD*⟩, *⇑9–1m/w* good about Struggle **cv** *1–4m,* ✍ *⇑5u "unoccupied | England"/w* were these spots bare? **cvi** *2–3m/??, 1–21w* ☞ very good showing how many of the same species are naturalised in Australia & U. States with very different climates; opposed to your conclusion **cvii** *"38"m, "51"m* **cviii** *"78, 79, 81, 85, 89,92, 93"m, ↕w* Several Indian plants & US shows us such grt necessity of constant introduction of seed. **cix** *"115"m, "139"m, wb* No remarks on cultivated plants!!! **cxii** *14w¢¢*

⟨*bound with previous item*⟩ **HOOKER, Joseph Dalton** *Introductory essay to the flora of New*

HOOKER, AUSTRALIA
xli Exclusive Tropical orders are all Indian. See MS note liv
xlii Great range of many tropical sp. because are much Extinction during Glacial. good see MS note Ask Hooker.
l Entire want of reciprocity between India & Australia
li Wonderful difference between S.E. & S.W. Australia
liii to lv In S.E. a much more mixed & imported Flora: The invaders have destroyed many indigenes
lvi Tasmanian list classed geographically
lxxxiv Discussion on. On European Plants. much modification in Tasmania lxxxv The Alpines of the mundane genera are more variable than the Alpine & Australian genera.– Perhaps the latter existed before Glacial epoch.–
lxxxvii Wonderful facts on absence of Aus. Plants in N. Zealand– showing non-continuous land. Dominant invaders in N. Zealand. lxxxix Lord Howe's Island.–
lxxxix Antarctic Plants xcii & xcviii S. African forms: ⟨*u*✏⟩ relation with respect to Glacial period
xcv & xcvii Important lists bearing on Glacial.– Many monotypic ♣ in Australia
xcviii Grand list bearing on Glacial distribution V. good remark p. cii
c. not reciprocity in Europe with Australia
⟨*over*⟩ Hooker Flora Tasmania
pci Relation of fossil & recent plants
ciii Discussion on Glacial Flora
civ Good remarks on Struggle for Existence
cv. On Naturalised plants good– M.S. Remarks on.–
cx Many Native Esculent plants
SB3 ❐ℜ ⊷
C. Darwin References to whole in Abstract of 4to Pamphlets

v *11m/u "and* | *both", 14–15m/w* proof? chiefly from variation in arctic countries *⇑5–4m* **vi** *10–11m, ⇑19–17m/w* crossing **vii** *4–5m, 7–8m, 11–16m, ⇑15–11m* **viii** *3??/u "a* | *unalterable", 18?/u "weakened* | *exhausted", ⇑19–18m/w* ? without selection doubtful *⇑18–17x/u "the* | *inhabits" wb* x I doubt whether holds with animals.– With Elephant it does perhaps.– **ix** *5u "neglected"/w* with or without propagation by seed?!! *14m/u "original* | *apple"/w* good *15u "extent* | *Roses"/m/w* where are facts on roses? *⇑20–19m, ⇑17–12m/w* good *⇑3–1m/w* good **x** *21–22m/??* **xii** *⇑5?/u "different* | *provinces", ⇑3u "more* | *permanent", ⇑3a "permanent"* & more easily disseminated **xiii** *3–5m/w*♦ do not understand *⇑21–29m/w* Battle of life pretty equal.– *⇑6–4m/w* Does it differ beyond having bulb.– **xiv** *1–3m, ⇑18–17m, ⇑12–11m* **xv** *wt* Is there not Epacris in Sandwich: how allied to Fuegian genera of Epacris? *1u "very", 2u "often", 3a "Africa"* yet African, & islands, barren *5u "some* | *forms", 8a "found"* exceptionally *8u "Tristan d'Acunha"/w* Is it not nearest to America? *1–8m, ⇑11–9m/w/wb* As coral islands themselves are included, they will generally have subsided, at intervals & been stocked by sea-borne plants & coral-soil very peculiar.– ∴ In Indian Ocean comparison not valuable. **xvi** *1–15w* An isld so lofty & ancient as Tahiti, whether rising or sinking must have been long peopled. *1–15w* Hardly facts enough known – some islands rather near continent included.– (Marianne & Caroline Isd ought to be included.– & Gambier Isld) *5–7w* I doubt whole case *⇑8–1m* **xvii** *3–7m/w* Effects of dampness on range – *9–20m, ⇑5–4m* **xviii** *"29"m/w* I doubt because the temperate forms have crossed the Equator in old & new world, & tropical orders still exist in both *⇑5–1m* **xix** *"Lycopodiaceae".m* **xx** *1u "genera"/w* & Devonian not different *13u "cone* | *Araucaria", 15u "Cretaceous", 16u "Juglans"/w* Juglans old & intermediate *18u "Characeae"/x/w* Lyell says in Middle Purbeck **xxi** *7m/u "900", ⇑18–14m* **xxii** *1–2m, 4–9m* **xxiii** *⇑16–14m/w* good *⇑12–9m* **xxiv** *1–3m, 5–15m/w* Highness & Lowness. *⇑19–17m/w* I have somewhere discussed this *⇑10–1m/w* good ✍ Highness & Lowness **xxvii** *⇑11–9m* **xxviii** *9–20m/17–18u±, ⇑22–18m, ⇑15–11m, ⇑6–3m* **xxix** *1–3m/w* peculiarities common to Orders **xxxi** *3–6m, 9–12m/w* Shows relations of organisms most important in battle of life. *18–19m/w* A Farmer in Australia would I presume follow same rotation of crops at equal ♣ intervals in N. & S. **xxxiii** *12u "South Africa"/11–17m/w* curious *19–20m, ⇑15–14m/m, ⇑9x* **xxxiv** *1–10x/w* Those with cross abounded○ next most in S. Africa This looks as if affinity to S. Africa had come round by N. *⇑15u "the genera",/w* chiefly mundane orders. **xxxv** *w* Invaders, with more species modified. *w* This makes difference look considerable *w* & all over World Alph De Candolle **xxxvi** *6m/u "six", ⟨in table 1b⟩c "Cruciferae"/w* Coniferae *w*♦ How many species **xxxvii** *2m/x* **xli** *⇑9–7m* **xlii** *8–10m/w* must take old & new worlds as distinct categories. *↕w/wb* What a number African & some American NB great extinction within Tropics during Glacial explains vast range of many tropical plants in at least old World Ask Hooker.– Whether there are not many

Zealand (reprint of)
cc, ch, ex, f, gd, geo, in, is, no, or, sy, t, v

NF pxxxiii Note Definition of "Antarctic" I have I think been misled, & often in doubt by not knowing this definition earlier
SB ❑β •◆
Plants common in New Zealand & South America but not European
⟨*not CD, annotated by him with locations of species listed; 6 sheets*⟩
Abstract no 20 ⟨*6 sheets: abstract of Botany of the antarctic voyage "Flora Novae-Zelandiae", not this Introduction*⟩

ii *"Chapter 1".w* J Lubbock you had better skip this first Chapter **x** *16m/u "reproduce|processes", 17m/*Q *17–23m, ⇑22–17m, ⇑12–8m, ⇑5–1m* **xi** *1–3m, 5–6m, 8–9m, ⇑14–12m, ⇑11–9m/*Q *⇑8–5m, ⇑1m/*Q **xii** *17–19m/?, ⇑4–1m/*Q **xiii** *5–7m, ⇑11–10m/⇑11u↔* **xiv** *wt* shows that vars. ♣ on these different in different countries *3–6m, 12–14m* **xv** *1–5m, 7–9m, ⇑10–9m* **xvi** *13–18m, ⇑3–1m/⇑2u "transport|sex" ⇑4m* **xvii** *2a "typical"/wt of that species 2*Q*/u "we|common", ⇑16–14m, ⇑12–10m* **xviii** *7m/u "of|seas"/w* V. Harvey Whether absent in Tropics *⇑22–20m/w* Decandolle 250,000 I think! *9u "did|Zealand"* **xix** *⇑17–16m, ⇑8–7x✎/m/w* how many common to North? *⇑6m/u "greater|peculiar"/w* see further on. *⇑4–1m/x✎/⇑4u "100 genera"/⇑3u "confined to", ⇑2iu "one species", ⇑2a "species"/wb* different?? if different points to some ancient connection.– **xx** *2a "so"/wt* comparatively *2a "Africa"/wt* about 1600 miles! *2u "placed|Africa", 1–4m, 4u "Antarctic", 4–5m/u "New|Australia"/x✎/w* Does this remark extend of Fuegia? *4–5m/x✎/w* exactly like White M & Europe. circumpolar cold *8–10m, 11–14m/x, 15–16u "many|Tasmania", 18–19x✎, 22–23u "individuals|scattered"/w* Yet Decandolle says often social! *⇑12u↔/a "related"* they wd not be 2 natural orders, if there were many connecting links.– *⇑10–8m/x, ⇑1u↔* **xxi** *13u "the|birds"/w* are these land Birds. I think not. *⇑8–7m/x* **xxiii** *14–28m/14–15x✎/20!/u✎ "Chili", ⇑16–13m* **xxiv** *2–3m, 9–13m, 14–15m, 18–23m/w* division of Alpine Floras *18x✎, 19x✎, 18a "Those"* regions or flora *18–19u "none|Arctic/w* ||✎ But surely there are northern European forms.– *21a "Alps"* X✎ would you add Auckland & Cambell Isd & Kerguelen land? No *22u "mountains"/w* see Meyer *23u "Pacific Islands"/w* Sandwich? *⇑11–6m/w*♦ do not quite understand *⇑9u✎/w* which *⇑8a "difference"/wb* ie show more species to be in common *⇑8?/u "three", ⇑7u "they"/w* in difference *⇑7–6u↔ ⇑4u "Fagus"/wb* X✎ *why These are Java, N. America, Europe. Give up wb* Mem. Beech leaves before Glacial in T del Fuego **xxv** *1u/a "the|islands"/w* which?✎, *9–16m/10–11*Q *16u "the|islands"/w* which✎ T del Fuego? *20u↔/w* – Can this be from change of seed? ♣ (Mention under my Ch.6) *22u "Sonchus"/w* vide (& algae) *⇑11–10x✎, ⇑11–7m/w/wb* very curious. So mammals in the 2 Americas – & Australia. Decandolle. Australia. & even C. of Good Hope – Might it not be that NO temperate plants of S. shores of Australia wished to get still further south & far from wishing to get north. Yes. The tropical plants wd crowd the equator & some few might cross. Hence Borneo plants wd have come from equatorial regions. *wb* The mere numerical preponderance of N. forms, from form of land wd account for it *wb* It wd make great or some difference whether northern or southern forms first occupied the gaps in the Tropics; when once occupied, S. forms wd have little chance of holding their own then. *wb* If it require time for some degree of acclimatisation than I think it wd certainly make difference *wb* But being driven out wd not make any difference in spreading. *wb* If cold first came on on N. side? I think it wd explain. *wb* No: it wd be that the southern plants wd be not driven out by by fresh arrivals from further south, or only feebly so. Yes♦, *⇑9u "are|transit", ⇑8u "have|altitude"/w* attributes apparently to ♣ altitude **xxvi** *15–18m/w* if an individual dies suddenly, is his formation sudden? **xxvii** *⇑12–10m, ⇑10u "Myrtaceae"/w* any species in common p.xxx 1 in common *⇑10u "Epacrideae"/w* p.xxx some in common *⇑10u "Protaceae"/w* do – not one only 2 altogether? → X✎, *⇑9–4m, ⇑10–1→*♦, *wb* This is all fully answered at p.xxx p.xxx. Compositae & Orchideae Australian genera. Surely there is considerably more affinity to Australia with Tasmania than to any other quarter of World, both in same species & genera Yes p.xxx: this was very impressive in looking over the Flora. vide Strezlecki whether Eucalyptus formerly in Tasmania NO **xxviii** *4u↔/w* ie very distinct. *5–7m/!, 8–10m, ⇑19–17m/w* So at C. of Good Hope very many bushes. **xxix** *title.w* Endemic *⇑20u "Phaenogamic", ⇑20–16w* more than ♣ 2/3 of which peculiar or 507/730 *⇑12u "genera", ⇑11u "Australia"/⇑11c "otherwise"/w* great inaccuracy○ & making order. *⇑8u "twelve species"/w* & 5 genera *⇑4u "Dammara", ⇑2u↔* **xxx** *wt* Are many of the 60 European species Annuals *1u "New|Caledonia", 3u* *"but Thuja", 6u "Atlantic"/w* Canary Isd *10u "one | species"/w* X✎ of these Calceolaria seems the only special one to S. America why not Fuchsia mentioned *10–11u "Mimuli | Ourisia", 13–14m/u↔, 16u "and | Australian", 19–20u↔, 22–27m/24u↔/26–27u↔, ⇑15u↔, ⇑11m/w*◆ 76 genera are S. American – of which 17 not in Australia (pxxxii) or in Old World. *⇑11→/⇑15–11w* Q pxxxii◆ as well as in number of genera◆ Therefore I infer N. Zealand in species, as well as such genera as Fuchsia & Calceolaria, more allied to S. America than is Australia X?✎, *⇑11→/wb* have you lists? *11a "American"* of which only 12 not in Australia, & 29 (some of them unaltered forms from old temp: antarctic land. Yes) not Europe; & 39 not in Antarctic *wb* X✎ of those 89 common (→ 17/76 of the genera to which these 89 species belong, are confined to New Zealand (ie not Australia) & America. ∴ are not Arctic see Q. p.xxxii This shows, again, much affinity betwen N. Zealand & America – It clearly is not transport direct from S. America to New Zealand which has caused affinity. V.(Q) pxxxii) to N. Ze. & S. Amer. there are 29 not in Europe; (→ How many of these not f. N. of Equator? see opposite page for 7 of the 29 species; are there more?) which are these? are they N. Asian, 1 is N. Asian, or are they all southern forms. or almost mundane except Europe *⇑12–7m/w* p.xii. Flora Antarctica there is said to be Arctic forms in Auckland & Campbell Islds *⇑10a "above"* of the 50 indicate no particular affinity *⇑9a "4"* These seem all world to me but wd require cold *⇑9a "species"* come direct to each from North *⇑9w* Are these all Australian? 〈*u*✎〉 pxxxii, 17 may have come by Sea. *⇑8w* – Therefore the affinity is not closest by now coldest regions.– Yet affinity by mountain plants. *⇑7–6u "decided | species", ⇑6–5u "genera | also", ⇑3–2u "240 | countries"* **xxxi** *1–2m/w* The making of species & conditions renders this doubtful.– ♣ Galapagos ● though *8w* & Casuarina *9–11m/w* very wonderful; but yet we know not means of transport viz duration of vitality. anyhow not continuous land.– *12a "Clianthus"/w* a Legum, & most rare Family in N. Zealand. *12–13u↔/w* Has Norfolk Isd many Leguminosae in common with Australia *14u↔ 20u "admirably | transport"/w* ? generally killed by sea-water; yet some Float & Mimosa sensitiva survived 50 days. *23u "land | between"/22–24m/w* ie in negative point of view, which wd be very strong if we knew means of transport.– *22–24w* X✎ R. Brown has said some survived. Gulf-Seas *27u "Edwardsia" 28u "the | Carmichaelia" 29u "feebly | plants", ⇑14X✎, ⇑13u "89", ⇑13u/a "some"/wb* 26 confined to Southern temperate Zone *⇑13u "Myosurus aristatus" ⇑12w* 7 *⇑8c "former"/w* N. Zealand *⇑8u "representative", ⇑8–6m/⇑7–6u "is | shown", ⇑6u "Fuchsia | Calceolaria", ⇑5–4X✎, ⇑1u "76"* **xxxii** *1a "17"/wt* yet only 12 species not f. in Australia (I shd think from N.Z going further south) *1–2m/w* (Q) V. p.xxx(Q) *1a "found"* either *1a "Australia"* || *1c "elsewhere", 1X✎, 2c "latter"/w* 17 *3a "form"* some groups *4X✎, 7–9X✎/u±, 9a "European"* ie 29 *14–15u "Many | numbers", 17–24w¢¢, 19–20u "16 | were", 21–22X, 23a "five"* which are the 5? Sonchos Pr◗ Sanaxicum Cotula *23–24m/u "The | so", 24a "ones"* in N. Zealand?? *⇑14–9m, ⇑8–4m, ⇑4u♠/wb* Have these become since extinct in Australia or have they arrived by other route: Australia has many European plants not f. in New Zealand. **xxxiii** *1u "European | Australian", 1–5m/w* absent in N. Zealand *7–8X✎/X✎, 7–14m, 10u "Those | Europe"/w* – come from North *13XX✎/w* either from Common source of Old Antarctic land. *15–16→, 17–19m/17a "those"* species *20a "these"* antarctic *20a "genera"* but not genera f exclusively in South *20a "50"* genera *22u "Drosera"/w* such genera may be representative, from ● in North. *⇑8–5m/w* Definition *⇑4–3m/x✎, ⇑4→/wb* & we have seen New Zealand contains some 17 not in Australia **xxxiv–xxxv** 〈*marks against nearly all lines, indicating location of species listed*〉 *wt* X✎ Would you mark genera f only S. of S. Tropics with S. – only N. of Tropics with N. Excepting mountains within Tropics ◆ would you mark the Genera not f. North of Equator◆ S. Tropics? wd it not have made it much more interesting of the identical species had been put in. *⇑17–12w* very strong case (p80) only one other species known *wb* This very strong Antarctic genus (p128 F.N.) with species on all the S. lands including Tasmania *wb* p.154. N.Z. very remarkable alpine plants of N.Z. Tasmania, & Fuegia, nearly allied to extensive Australian genus of Stylidium. **xxxv** *wb* X✎ 7 North having representative species 18 Mundane & doubtful 25/50 Southern genera (There are 5 cases of representative species between S. America & ♣ Australia & not occuring in New Zealand.) **xxxvi** *1–13w* S *14–19m/X✎, 20–31m/24u/a "New Caledonian"* great subsidence of *28–31m/X✎, ⇑5–1m/m, ⇑2u "Epacrideae"* **xxxvii** *tab.m/w* see average

number of species ⇑*16m/u "that* | *genera"/w* This variability is rather different from actual vars. for if very polymorphous. vars. are not designated. ⇑*12–11m*/⇑*11u "necessarily vague"*, ⇑*8m/u "that* | *tendency"*, ⇑*6–4m*, ⇑*3u "and* | *variable"* **xxxviii** *1–2m/w* How in N. America? *3–5m, 8m/w* more variable *12m, 14–15?/u "geographical* | *characterize", 16–17m*, ⇑*4u "Banksia* | *form"* **xxxix** ⇑*12–9m*, ⇑*4–2m*

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gd

NB Geographical Distribution; 417 to 446 whole discussion
1 *1–10m* **417** *24–36m* **420** *1–6m* **421** *11–17m, 25–29m* **436** *1–7m* **440** *28–35m* **441** *4–8m/6u "half"* **445** *1–6m, 23–28m* **446** *14–23m*

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af, cc, ch, ds, ex, fo, gd, hl, ig, in, is, no, oo, phy, sp, sy, t, ti, tm, v

NB1 ♦ If very few temperate European plants occur in S. Africa probably Africa hottest part of world during Glacial period: but Heath ♣ extended over whole –
The connection of Flora of Old & New World before Glacial period, when temperate forms inhabited now ♣ arctic regions – probably by Beering St –
Hookers remark, somewhere, that flowers whose organs are only a little metamorphosed from leaves are most variable is only part of general law, that lowest ♣ organisms most variable.–
Glacial epoch; p.87; p.101; p.103, 4; 104 Khasia & India & Java; 105 Japan & China; 108; 113; 253; 126; 235
NB2 ♦ Mayatts cinquefoil strawberry advertised
p.11?; p.13; p 19 to 43; p82; 87; 91 to end of Introduction
p.2; p.22; p.28; 56; p89; 91; 165; 171, 2; 186; 207; 217, 8; 222; 226; 233, 34; 240; 243 to 248 Ask Hooker; 251♦; 258
← ⟨*to NB1*⟩ Glacial
SB ❑β ⟨*last three references on separate small sheet*⟩
over (Flora Indica)
p.13. Remarks that local Botanists new species makers (Ch. 4)
p.24 Says generally plants vary more in one climate than another (Ch. 4)

– Cannon. ⟨*he means 'canon'*⟩ Similar climate in distant areas not inhabited by same or similar plants
p26 Plants of N. Zealand more variable than those of India
27 Dry hot lower hills of central India poor in species
28 Individual variation (Ch. 4)
29. Organs least modified vary most XX
30 Cedar of Lebanon & Deodar
30 Division of vars. of more permanent which accompany change of locality ?? (Ch. 4)
32. Change of value in timber – Oak worthless at Cape
32 Great change in medicinal properties of Plants in different climates
37 Many extraordinary instances of deficiencies, as no Oaks & Pines – Caution about Islands. Woodpecker & Vulture in Australia
41. India & Java formerly continuous! Argues against chance introduction as too harmonious;– ♣ look at dispersal of Boulders.–
41. Good remarks on strife of Plants
82. Mean temps of Equatorial Zones (?) for Glacial – at 30° of Lat. 1 for each Degree 1° for 300 ft ∴ 3000 = 10° of Lat
87. Lower Himalaya & plant of Ceylon at 8000ft, often identified (Glacial)
91 India very general sort of Flora (& very central site C.D)
92 Local numerous assemblages of species only connect on temperate & subalpine districts
99 4000–6000ft truly temperate veg. supersedes Tropical
113 Connection of Africa & India, especially mountain plants p.129 do p152
114 Cases of identical & representative species in remote & exceptional areas
– Abnormal very wide rangers but disconnected?? ✏ p.165 do ♣✍
237 In Khasia orchids 1/12 of vegetation
⟨*line across page*⟩
p2. On Highness & Lowness – Low variable Q
28 Ranunculus species of widely diffused, therefore variable Q
165 The most perfect species in group ought to be used for classification
171 Organ of vegetation, as wood of no value for classification
207 – Orders of limited extent point in many directions, just like Cucurbitaceae of Wight, though he took distinctness as element.–
217 Berberis aplexus of species (Ch. 4)

218 Berberis some species evergreen, some deciduous & some variable – (so in Privet ? & Oaks). Q
219 Marked vars of Berberis vulgaris (Ch. 4)
233 &✍ 34✍ on remarkable structural differences in member of same Family. p.234
237 Point of classification
240 All water plants wide rangers & variable
The Glacial references are marked at end of Book
p248 "structure of grave interest in a Physiological point of view, but of no weight in systematics"
249 Connecting link between two Nat. Fam.
259 Corydalis one of few genera with many species in Himalaya, in which majority are remarkably distinct.–

Introductory essay, 11 *28?/u "descriptions", 29u "definitions"* **13** *5–10m/w* Shows how vars. & species run into each other *22–25m* **19** *20–23m* **20** *3–6m, 23–27m* **21** *2–11m* **22** *3–5m, 20–22m/!, 24u "but | in"* **23** *1–4m* **24** *16–18m/16u↔, 20–27m/22–23m* **25** *4–5m, 8–10m/8w* What *11–16w* ? Yet parentage of scarcely any oldest plants known *16–24m/20w* (a) *32–36m, wb* (a) All very good against mere climate or change in conditions.– **26** *4–8m, 9–14m, 35–36m* **27** *2u "dry | lower"/2–8m/w* How absolutely opposed to Gardner & Bromfield *9–10u "Such | is", 12–17m/14w* (a) *wb* (a) Everywhere existing conditions of existence thought to be cause **29** *3–6m/5–7*Q *9–10m, 9–33m, 15–16m, 32–33m/32u "leaves | bracts"/33u "perianth"* **30** *7–11m/11u "2", 12–20m/16–18u "habit | exposures", 28–34m* **31** *1–4m/w* Why put under 2d Head? **32** *6–9m, 16–21m* **33** *21–24m* **35** *17–23m* **37** *22–30m* **39** *16–19m, 23–24m* **41** *2–5m, 8–10!, 9–11m, 14–19m/15–23w* are not oceanic currents Harmonious Look at drift deposits.– **42** *1–2m/u "is | continuous"/??, 3–8m, 19–21m* **82** *5–9m/w* See next Page **83** *1–2m* **87** *9–22m* **91** *8–20m/10–16w* India & Africa oldest parts of world **92** *27–30m/w* Have you list ? Several species of same genus? *32–36m* **93** *2–10m, 11–16m* **96** *33–36m* **98** *29–32m* **99** *10–11m, 25–28m* **101** *1–5x✎/2u "Gentiana"/3–4m* **103** *22–28m/22x✎/u "Malay peninsula", 32–36m/33x✎* **104** *1–4m/w* can they have travelled up? *18–23m/w* When these connected the few Australians arrived in Ceylon **105** *6–9m, 11–14m, 19–23m, 25–29m/26w* (a) *wb* (a) I suppose these species are found in temperate China: this is important.– **106** *1–2m/wt* I presume absent in Tropics **108** *1–3m/1x✎, 11–22m/17x✎* **109** *1–4m* **112** *10–14md* **113** *15–22m, 27–30m/27–28u "mountain | Africa"* **114** *8–11m/9u "Few | identity", 10–16m, 20–24m/18–30w* Wandering species seem to connect whole world.– together *32–34m, 35–36m/36u "identity | species", wb* Identical Species & representative going together. **115** *22u "representation", 28u "Chilian species"/29u "representatives"/26–30m/w* are these genera Chilian **116** *1c/a "Western"* East/ **120** *5–8m, 17–21m/15–23w* during cold period wd be driven here as last refuge **126** *⟨u♠⟩ 11u, 12u, 13u♦, 13u, 17u, 19–20m* **129** *27–34m* **133** *2–7m* **152** *24–28m* **165** *19–20m/20w* (a) *↕w* It is only species common to distant points of continents, & when accidental sea-carriage out of case. *wb/24–36w* It wd be worth seeing in all such cases, whether there were small aberrant genera, indicating extinction. There were cases before in Book. (Myrsine at Cape & Abyssinia a case ??) **170** *22–27m* **173** *28–33m* **235** *13–17m, 20–23m* **237** *3–6m* **253** *1–4m/x✎*

vol. 1, 2 *wt* 2. *22–33m, 39–46m/41–45*Q **22** *44–47m, 49–51m* **28** *43–47m* **29** *25–28m* **33** *19m* **40** *8m* **46** *⟨u♠⟩ 17u, 18u, 19u, 22u, 23u, 27u, 28u, 29u, 32u, 33u, 34u, 35u, 36u, 37u, 38u* **56** *28–32m* **89** *20–23m/22u♠* **91** *8–11m/w* here, I think, some temperate forms occur **157** *zb* **165** *35–37m* **171** *41–46m, 53–56m* **172** *45–53m* **186** *9–11m* **207** *38–43m/w* like ancient Fossils – There are living Fossils **217** *46–52m, 53–55m* **218** *30–38m/34–36*Q **219** *3–6m* **222** *3–8m* **226** *35–39m* **233** *32–37m* **234** *24–26m, 27–30m, 34–37m, 38–39u "explained | apparent"/w* What mean? **237** *3–6m/3w* What? *37–41m 41–50m* **240** *1–2m, 5u "thalamiflorous polypetalous", 6–7m, 21–27m, 33–35m/33–34u "all | ranges", 35u "from | stamens"* **241** *46m* **243** *↕m/w* If these characters did not vary & so in BarberusO they wd be good species. **247** *1–2m* **248** *1–6m/2–4"...", 26–31m* **249** *10–12m/11u "being | structure"* **251** *41–45md/w♦* Is having a style a peculiarity **258** *wt* owing to corydalis *1–3m, 45m* **259** *1–3m, 33–34m*

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HOOKER, W.J., BRITISH FLORA

Longmans; 1838 [CUL, S C. Darwin April 1841]

f, fg, gd, mhp, no, phy, v

NB1 178 variety
NB2 Galium aparina○ hooks on seed & leaves Agrimonia? I should doubt acting as hooks In end of August flowers of Lathyrus Nissolia do not open ♣ have petals ♣ 1/2 size of those in spring, & of a very pale dirty purple, but yet get seed, are produced abundantly.
NB3 p.35♦

⟨*untranscribed w:* W *meaning* Water-plants⟩
1 *21w* **2** *7w, 23w, wb*♦ some water **3** *2w*♦ Marsh *7w*♦ water *40w*♦ water **5** *34w, 41w* **6** *1w* **8** *14w, 27w, 40–41w* **9** *8w, 18w, 28w, 37–38w* **10** *9w* **11** *31w, 38w, 46w* **12** *4w, 13–14w, 46w*♦ Marsh **13** *20w*♦ Marsh *25w*♦ Marsh **15** *4m, 16–19m* **16** *32–37m, 38–43m, 45m* **17** *5–9m, 36–39m, 43–44m* **18** *5–8m, 10–16m, 19m* **19** *29–32m* **21** *1w, 6w* **24** *7–9w, 28–29w, 47w* **25** *6w, 25w, 37w* **26** *8–9w, 17–18w, 25w, 37–38w* **27** *13–14w, 21w, 32w, 47w* **28** *13–14w*♦, *30–31w, 38–39w* **29** *4w, 28w, 34w, 40w* **31** *6w, 12–13w, 18–19w* **33** *15w, 38–39w* **34** *43–45w* **35** *1–8m/4–5w*●, *44–46m* **36** *10–14m, 22–25w* **38** *28–30w* **40** *24–26w* **41** *11w* **50** *13–14w, 41–42w* **53** *26–27w* **54** *30–33w* **57** *38w*♦ **58** *2w*♦ **60** *11–13w, 24–25w* **66** *42–45w* **68** *8w, 17w, 34w, 43w* **69** *6w, 16w, 23w, 27w, 33w* **70** *6w, 19–20w, 31–32w* **71** *1w, 18w, 31w* **73** *7w* **74** *10–11w* **75** *4w*♦, *9w*♦, *14w*♦ **89** *5w* **90** *15–16w, 25–26w, 33–34w* **93** *8–10m, 13–14w, 29w* **95** *24w, 32w, 40–41w* **98** *27–28m/w* Below Barston **100** *22–23w, 46–48w* **101** *13–18w* Eastbourne **107** *44w* **108** *4–5w* **110** *8–10w* **111** *43–45w* **112** *5–6w, 45w* **113** *4w* **114** *29w, 36w* **115** *8–9w, 26w, 34w, 43w* **116** *9–10w, 20–21w* **118** *12–13w, 30–31w, 39–40w* **120** ⇑*2–1w* Down, Aug 45 **129** *28–29w* **130** *20–21w* **131** *17–18w* **132** *22–23w, 34–35w* **133** *6–7w* **137** *35w* **138** *4–6w* **143** *6w, 38–39w* **144** *4–5w, 12w, 23w* **145** *8–9w, 31w, 43–44w* **146** *4w, 14w* **147** *10w, 34w* **148** *19–20w, 29w* **150** *32–33w* **151** *6–7w, 15–16w* **152** *16w, 22w* **153** *3w, 9w, 20w, 34w* **154** *11–12w, 25–26w, 33–34w, 41–42w* **155** *9z* **160** *29–31m* **161** *3w, 27–28w, 34–35w* **162** *12w, 15–17w, 35–37w* **164** *41–42w* **165** *28w* **166** *32–33w, 43–45w* **167** *11–12w* **172** *37–39w, 45–46w* **173** *41–42w* **174** *20–21w, 30–33w* **178** *28–30m* **179** *2u* **181** *10–11w, 20w* **190** *13–15w, 36–38w* **192** *11w, 18–19w* **206** *7–9w* **208** *33–34w* **215** *3w, 11w, 19w* **216** *31–34w* **217** *17w* **218** *27–28w, 33–34w, 42–43w* **219** *2–3w, 31w* **220** *39–40w* **226** *44w* **227** *7w, 18–19w, 26w, 39w, 45–46w* **228** *12–13w, 32–33w* **229** *19w* **232** *42–43w* **235** *17w* **237** *41–42w* **238** *29w* Down *36w* Down **239** *2w* Down *13w* Down *28–29w, 35–36w* **240** *20–22w* **247** *40–42m* **249** *17–18w, 22–23w, 37–38w* **251** *24w* **253** *27w, 35w, 41w* **254** *1–2w* **262** *17–19w* **270** *9–10w* **273** *zb* **274** *24–27w* Down Aug. 29th **281** *15w, 47w* Down **282** *33w, 34–36w*♦ **284** *25w* very common **289** *5w* Down **292** *2–4w, 20–21w* **296** *42–43w* **297** *42–43w* **298** *14–15w, 41–42w* **299** *3–4w, 36–37w, 42–43w* **300** *5–6w, 39–40w* **301** *30–31w* **302** *17–18w* **303** *10w* **304** *9–10w* **305** *18–19w, 26–27w, 40–41w* **306** *38–39w* **307** *1w* **313** *7–9w* Down common *15w* Maer✍ Down *27w* Beechy Head **314** *35–37w* Down June 22/43 *46–48w* **315** *3w*✍ Maer *15w*♦✍ Maer *29w* Eastbourne *35w* N. Wales *43w* Down **316** *2–7m, 8–18m, 22–24m, 27–32w* Down June 25/43 *27–29w* Down June 15/43 *38w* Down **317** *3–4m, 37w* Down **318** *17–18w, 27w*✍ Maer *43–45w* Down May 21/54 **319** *21–22w, 30w* Down **320** *8–10w, 18–19w, 26–28w* **321** *18w, 24w, 29w, 39w* **322** *6w, 12–13w* part W *28–29w* Marsh *33–34w* Marsh **323** *33w, 42w* **324** *6w, 11–12w* **325** *wb* 9 water 3 marsh **328** *40w, 47w* **329** *7m, 9w, 19w, 30w, 47w* **330** *6w, 14w, 19w*♦, *30w* **331** *3w, 3w*♦ Bogs *12w, 14w*♦ Bogs *31w, 33w*♦ Bogs **332** *5w* W/Bogs *28w* W/Bogs *36w* W/Bogs *44w* W/Bogs **333** *15w*♦ Marsh *17w, 27w* Marsh *29w, 44w*♦ Marsh *45w* **334** *4w, 5w*♦ Marsh *34w* Marsh *45w* Marsh **336** *6w* Marsh *40w* Bogs **337** *3w* rocks *14w* Marsh *27w* Water *42w* Bogs **338** *10w* Bogs *17w* Marsh *35w* Bogs *42w* Marsh **339** *22w* Marsh *48w* Marsh **340** *7w* Marsh *48w* Bogs **341** *10w* Bogs **342** *33–34w* **343** *21w, 33w, 41w* **344** *41u "watery"/w* Marsh **345** *4w* **346** *32w* Water **347** *7w, 20w, 29w* Eastbourne *30w* **348** *4w*♦ Down **350** *35–37w* part Marsh **351** *31w* Marsh **352** *9w* Marsh *27w, wb* 1 Water 3 Marsh **354** *39w* Marsh **355** *14w, 35w, 45w* **356** *36w* **357** *21w, 43w* **358** *14w, 27w, 41w* **359** *35w* **363** *29w, 41w* **364** *3w* **365** *5w* **370** *34–35w* **375** *43w* Bogs **376** *30w* **377** *4w, 10u "wet rocks", 11w, 32w, 34w* **378** *30w* Water **379** *26w, 31w, wb¢¢* **434** *2m/w* 398 *19w* 403

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sy, v

NB Q 486 Variability of Zannichelliae
166 *"39".m, "5".m* **167** *"7".w* 8 *"18".m, "23".m* **168** *"39".m* **486** *17–22m/*Q **560** *9–12m/6–10w* In 4th Edit. this is a Bromus *17–18u*↔

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no

NB Dr Groom tells me that there is much in this volume about the increase & decrease of Birds of last year in England
48a *24–30m, 32–43m* **121a** *50–53m*

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beh, che, em, f, fg, oo, no, phy, sx, ta, v

vol. 1 SB 171 Queen killing sisters 10 minutes after Born –
184,198 can sting each other without being killed, but risk is run.
190– How Bees treat strange Queen
220 Queen killing larvae of other Queen
231,235 mistaken Instincts
♦ <u>Not</u> abstracted
169 *2–3w* Read **171** *⇑6–1m/⇑6u "peine | minutes"* **184** *10–22m* **190** *⇑11–9m/⇑10u "la reconnoissent"/⇑12–9w* their own Queen *↕w*

W. Fox says workers know strangers **198** *1–5m* **200** *5w* Read **208** *1–2w* Read **220** *9–18m/w* V.224 *⇑7–1m* **224** *3–7m, 11–13m* **225** *4–9m* **231** *⇑8–2m* **235** *⇑5–2m* **359** *⇑3–2w* Read♦ Read **360** *1–3w* Read

vol. 2 NB 104 – Wax secretions piling wax
140 seems to consider architect a different race
SB □ℜ ⟨*2 sheets*⟩
p426 to 430 <u>Very good</u>
43♦ show same peculiarity appearing in many ♣ Evidently different for old & battered Bees.)
442. Bourdon workers lay only Males & Workers
444. Ants always killed by copulation
It seems quite possible that the 1st row may be formed differently, as they cannot initiateO work with usual number of Bees
⟨*over*⟩
<u>66, 67, 69 X Instinct 188</u>
98; 110 Vide Pl 4; 120; 141 to 187; 211; 215
219 Instinct bending comb
286 The fallen comb
222 to 226 size of Drone cells.– gradation of size before & after. 3 or 4 rows or when Honey abounds (247) Bears on W. Indian cells
234 to &c
238 inclination of prisms to base not yet inserted – distorted.–
250
342 Ventilation 357 to 360
374 Bees begging for Humbles
Huber proper Bees have very acute smell –
⟨2⟩
On First Wall p110, 146–141
<u>∩ thus</u>
<u>2/3</u> of diameter of cell
175 repeat over & over again edge rounded of outer margin of base of first cell
235 ribbon of wax surrounds whole comb when bigger
⟨*over: drawing of small circles and hexagons*⟩
⟨*words here indicate that this is a scrap torn from the abstract of a different book and re-used*⟩

66 *15–20m* **67** *1–2m, 7–11m* **69** *5–8m* **98** *9–12m* **104** *20–25m* **108** *11–18m* **109** *13–22m* **110** *6–9m, 6–8u "six | cellule", 12–13u "mais | élévation"* **120** *6–8m* **140** *3–8m, 10u "les | architectes"* **141** *19–21m/20u "petite cavité", 21–23m* **142** *3–5m/3–4u "bords | cire", 8–9u "mais | alongés"/w* this will be the <u>posterior</u> face *14–15u "étant | alongé", 17m/9u "de | diamètre"/u "portion | brute"* **143** *wt* ∩ [He speaks of this as connected with ∧ independently of walls] *3–5u "Le | rectilignes",* *4–13m/5–25w* If the sides of separate cell one are angular before other cells formed fatal to my theory. opposed by my facts.– yet Icaria; but Icaria only becomes angular after some cells formed *20–23u "douées | épaisse", 23–25m, wb* [This is very last part excavated!!! that they begin near where 3 planes meet.] **144** *11–13u "ainsi | autres"/w* I presume simultaneously **146** *2–5m/5u↔, 11–14m* **147** *18–20m* **148** *16–17m/17u "une | droite"* **149** *15–23w* when (1) cell only 2/3 of diameter in height ie. 2/3 of total height what will acquire **150** *3–4u* **151** *7–8u↔, 17–21m* **152** *16–18m, 21–23u±/w*♦ Queen cells **153** *2–4u↔/2a "derrières"/wt* or posteriors *12–22m/12–13u "tardèrent | partie", 18–19m, 23–24u "à | à", wb* [I believe never done, except when cell added or where Bee can stand] **154** *4–7m* **155** *11–18m* **158** *19u "approfondir | cavités", 22–25m* **159** *13–18m* **161** ⥣*12–1w/wb* [Here he speaks as if 1st cell completed before any trace of other 2 above on same side, & one above on opposite side. inaccurate **164** *5–9m/5u "mais | elles", 8–11m/9–10u "elles | cavités", 17–19m* **165** *1–2u "dont | prolongés", 3u "tandis", 9–12m/9–10m/u↔, 16a/u/wτ, 22–24m, 23–25u↔* **168** *6–7m/w* 1st cell of 2d row *7–8u/8a "mais quelques"* other *15–25w* He speaks as if one hex outline of 3 rhombs always first formed, ♦ but says nothing about these being zig-zag **169** *2–5m/4–8w* so that they begin on <u>level</u> of base of prisms *7–11m/1–11w* Error here hexagon before excavating ⥣*6–3m/w* Error ⥣*5–3m/w/wb* it seems that this rhomb was completed on one face before the face in 2d row was begun: I doubt this. **170** ↕*w* [Here it is clear, that he thinks hexagonal outline completed before excavation begins ⥣*2–1m/wb* it is clear that they perfect one rhomb & then other two **171** *wt/1–5w* I may say after outline of trihedral pyramid formed; & added to, the outline seen through wax guides according to Huber the excavation of the base & making the internal planes *1–3m, 7–8u↔* **172** *2–5m/4–9w* ie first of 2d row on posterior face **173** *20–22m/21u "d'abord arrondi"/w* always round **175** ↕*w* [Error – in fig 21 he draws hexagonal outline with no pyramids!! ⥣*8–6u±/m/w* but then all outlines obtained ♣ from adjoining cells **176** *12–16m, 18a "élevant"/18–23w* first an arched line, then converted into **179** *2u "aucune | bornent"* **180** *wt/12–18m/1–19w* Here he shows he thinks hexagonal outline at first up & down vertically *15–16w* of pyramid bases **182** *20–24m/21u "alternativement"* **183** *14–17m/16u "l'obscurité | gâteaux"* **184** *6–14m/12u "creuses | bloc", 21u "une | des"* **185** *8–11u↔* **186** *8–15m, 16–19m* **187** *wt* [I doubt about wax being added in successive stages.] *5–11m/7–11m* **188** *2–7m/4–5w* Internal **211** *1–5m/w* How can this be considering Drone cells & other irregularities? **215** *6–9m* **219** *10–17m, 18–20m* **222** *1–6m, 24–25m* **223** *1–3m, 9u "trois | quatre", 14–15m/14u "à quatre"* **224** *7–8m/8u "formes bizarres"* **226** *15–16m/15u "il | poute"* **227** *7–12m* **228** *4–8m/w* because cd not stand to measure?? & edges rounded?? **234** *13–17m, 20–25m* **235** *10–16m, 23–25m/w/wb* the little wall of first wax surrounds the whole comb **236** *5–8m* **237** *15–20m* **238** *3–5m/4–5u "quatre | cinq"* **242** *1–3m/w/wt* no pyramids like case in Fig 2 Pl IX **247** *6–8m/w* Drone cells **250** *7–12m* **252** *wt* All about Proportions except words about fallen comb. **256** *12–16m* **286** *19–25m* **287** *23–25m* **288** *16–19m* **294** *16–20md* **295** *24–25m* **318** *⟨err. printed 317⟩ 3u "à | quart"* **342** *wt* Has shown by laborious experiments; that Bees require constant ventilation on acct. of carbonic acid, & that they do ventilate the Hive. *1–14m* **343** *1–3m, 24–25→* **344** *17–18u "dans | tout"* **357** *5–9m, 13–16m* **360** *20–24m/w* only <u>workers</u> know how to ventilate **374** *12–16m* **426** *12–16m/w* Hated & killed by other bees **428** *16–17u↔/12–19w* shows |vast| number affected <u>same way</u> **430** *7–16m/12–13m* **433** *22–25m* **442** *11–19w* Many workers of Bourdon fertile & lay only male eggs **444** *3–9m*

HUBER, Pierre *Recherches sur les moeurs des fourmis indigènes* Paris; J.J. Paschoud; 1810 [CUL, pre-B]
beh, cc, em, in, mg, oo, phy, sp, sx, v

20 *3–7m/?* **60** *14–17m/14u "fourmis rouges", 18m, wb* F. rufa in tree at Moor Park **61** *10–12m/11u "représentent | l'enfance", 14–15m* **75** *4–10m* **77** *9u "au sexe", 12–14u "donnent | mâles"* **79** *9–11m/10–15w* differs in larvae of different seasons *22–24m* **80** *21–24m* **84** *16–20m* **85** *24–26m, wb* Differ in <u>species</u> & variable in individuals **88** *11–14m* **110** *4–7m, 8–10z* **111** *10–14m* **114** *6–8m, 9–11w* Virgin Queens *12–15m* **115** *5u "cet | leur"* **116** *21–24m* **118** *15u "le plus"/16–19m/w* Free Queens feed themselves **144** *wt* Migration *3m/u "puis | femelles"* **145** *24→* **146** *23–24m/w* Make roads **150** *15u "quatre mois", 17–19w* 4 months afterwards *22–24m* **151** *1u↔, 9–10m* **159** *4u "fourmis"/5–6u "ont | d'armes"/4–6m/w* what genus? *7–9w* V. Latreille Treatise **165** *9–13m* **173** *17–24m* **179** *16–19m* **181** *7–8m, 15–17m* **183** *13–14m* **186** *5–9m* **188** *9–20m/9u "les | manoeuvres", 20–23m* **189** *7–12m* **192** *5–*

8m **193** *24→* **194** *4–10m* **195** *24→* **196** *3–6m, 8–10m* **201** *wt* X Coverings for Aphides on stems. *8–10m/x* **204** *19–22m* **205** *19–21m, 22–24m/→* **206** *5–7m* **207** *1–4m* **210** *13–15m* **212** *12u "larve | nymphe"* **213** *1–5m/2–3w* like M **215** *2–5m* **216** *3–6m/4u "indifféremment | ces"* **219** *12–13m* **228** *1–4m/3a "soin"/wt* of the males & females **229** *7–12m/12u "gardent | nid"* **230** *2–8m* **231** *14–16m* **232** *14–17m* **233** *9–11m, 12–14m* **234** *1–3m, 8–10m, 15–16m* **235** *8–9m, 19m, 21m* **239** *10a "retour"* without Booty *10–12m, 17–21m* **240** *11–12m* **241** *1–5m, 7–20m* **242** *9u "noir-cendrées"/w* F. fusca *14a "mineuses"* F. cunicularia **243** *20–21m* **244** *1–4m, 6–10m* **245** *7–10m* **251** *6–11m, 10–12m, 15–16m* **252** *7–11m/8u "rarity", 18–24m* **253** *1–4m, 11–14m, 17–19m* **254** *13–16m, 17–19m* **255** *4–6m, 12–13m* **257** *12–14m, 15–18m, 23–24m* **259** *3m, 16–22m* **270** *8–11m/wt/1–15w* They must mistake the amazon workers, for males or females, for these are fed by their own workers. *14–15m, 16–18m* **271** *16–17m/16u "une fois", 24m* **276** *3–6m, 18–20m/w* different? *21–22u "que | cendrées", 23u "comme elles"* **277** *3m, 4u "quelquefois", 5m/u "la | auxiliaires"/w* different *7m/w*♦ What says *8w* F *13x/u "certaines | fourmis", 15u "on | troupes", 18–20m, wb* X it is remarkable any ants preying on & keeping slaves of same species **278** *22u "cendrées"* **279** *2u "et | captivité",* ⇑*3u "assiégées | assiégeantes"* **282** *7–13m* **283** *6–9m, 18u "cent | pas"* **284** *2–4m, 7m, 9–10m, 12–14m, 19–22m/19–24u±, 23–24m, wb* not due not knowing road **285** *3–5m/4u "fauves", 20u "mineuses"/20–24m, wb* F. cunicularia **286** *3–5m, 11u "sanguines | roussâtres", 13–16m, 19–22m* **297** *3–6m/4–10w* & variation in individuals as F. Smith shows **300** *1–7m* **310** *10–14m* **last plate** *w*♠

HUBER, Johannes *Die Lehre Darwin's* München; F. Leutner; 1871 [Down]

NB O/

HUBRECHT, Ambrosius Arnold Willem *Studien zur Phylogenie des Nervensystems* Amsterdam; Johannes Müller; 1882 [Down, I]

HUC, Evariste Régis *Recollections of a journey through Tartary, Thibet and China* London; Longman, Brown, Green & Longmans; 1852 [Down, S]

DIE HÜHNER und Pfauzenzucht in ihren ganzen Umfange Ulm; F. Ebnerschen; 1827 [CUL, pre-B]

dg, fg, gd, he, hy, ig, oo, phy, sp, sx, sy, t, tm, v

NB p1 to 21 Rest Nothing
SB 11 Crested Fowl either wattles or beard, parent no beard easily killed by Hawks: cannot see them for tuft ✍ can hardly see to eat) Q
12 Breed without Middle long tail feathers NQ✍
17 Black-boned degenerate in Germany Q✍
20 Hens with spurs NQ

4 *wb* How many eggs has wild F.? **6** *17–18u "vierzehn"/w* 14 tail feathers **9** *wb* (14 kinds with subdivisions) **11** *wb* The tufted fowls prevent fowls from seeing food & will grow them, & be easily killed by Hawks. who ever would have thought that a tuft on head wd determine whether fowl shd be more easily killed by Hawks.– *9–12w* has either flat-tufted or feather beards *18–20m/*Q✍*, 23–25w* Pure breed no wattles **12** *wt* Some think little wattles because nourishment go to crest – *1–4m, 5u "mexikanische"/5–6w* all Mexican Hens said to be of this race *14–17w* sometimes feather footed & always rough skin *17w* varieties of Tufted Hens *18u "brabantische", 20u "goldfarbige", 22u "Gewöhnlich", 28w* Large Birds *32–36w/wb* in this & longtail feathers wanting & other tail feathers smaller *wb* I shd think these were Gold & Silver speckled Hamburghs **13** *11m, 18u "Kolo"/13–23w* Long in legs with small Body & red flesh with ornamental Beak. Like Philippine Hen. **14** *26u "Steissbeins", wb* Tailless hens, shortening of coccyx is the cause **16** *7–10m/8w* (a) *21–23m/22w* (b) *wb* (a) In crisp Fowl Hen has no tail!? *wb* (b) Wooly Hen, black legs & comb common in China, Japan, &c **17** *wt* Black-boned Fowl degenerate in Germany Q✍*, 1–2m, 5–9m/w* Mongrels intermediate *11w* bantams *17–20w* naked feet very small *20w* do. *21w* feathered feet *24–28w* Feet very short Belly almost touches ground.– *wb* Feet wonderfully feathered **18** *21–22u "einen | Schwanz"/19–22w* Hens from isthmus of Panama **19** *5–10w* Philippine Hen with excessively short legs, wings scrape ground *11u "Hamburgische", 13–21w* Belly & legs like Velvet very sharp Beak, tuft of feathers over ears Legs & feet blue with yellow soles. *13u/wx, 24m, 25u "paduanische", 26–29w/wb* is as big again as foregoing double comb & tuft of feathers Rough Voice **20** *wt* Bahia Hen race of Padua hen *2u "Persischen | Peguanischen"/2–6m/w* Yet their feathers very late *9u "türkische", 10–11w* Beautiful feathers *20u "Sansevarre"/w* white comb; under other comb. *22–23w* very big eggs *27–28w* Hens spurs like cocks *wb* [I suspect all this copied from some Systematics Book] **21** *wb* See Linnaeus Syst Nat (my copy) vol II p.737 for good references Bright & Pallas & Willughby *3–4w* 5-toed breed spur divided **65** *zb*✎

HUMBOLDT, Alexander von *Cosmos* 2 vols., trans. E. Sabine; London; Longman, Brown, Green & Longmans; 1846 [Down] vol. 1 ℘

HUMBOLDT, Alexander von *Essai géognostique sur le gisement des roches dans les deux hémisphères* 2nd edn; Paris & Strasbourg; F.G. Levrault; 1826 [CUL, pre-B, S]
geo, mi

176 *10–13m/11c "O"/12m/w* E *17–21m, 32–33m* **326** *24–26"...", 28–32m* **327** *9–12m, 14–16m, 18–19w* A *25–26m/25w* A *31–32m/w* A **328** *1–11"...", 4–5m/z/5u "grès schisteux", 6–11m/6u "nids | roguous"/7u "juxtaposition"/11u "rubanée", 23m/u "zones parallèles"/22–24"...", 30–33m/w* No centre to mine *wb* A. do. Obsidian nodules no centre **329** *1–3m* **334** *6–16m*

HUMBOLDT, Alexander von *Fragmens de géologie et de climatologie asiatiques* 2 vols.; Paris; Gide, A. Phian Delaforest, Delaunay; 1831 [CUL, on B, S in both vols., vol. 2 Chas Darwin Monte Video Novem: 1832]
geo, mi, sp, t

vol. 1 NF1 Metaphysics
NB2 Interesting parts begin P.84; The Andes P143
NB1 27; 53; 97
NB2 Species theory O/ March 57
7 *wb* Metaphysics **27** *14–16m* **53** *1–8m* **74** *1–20m, wb¢¢* **95** *14–20m* **97** *6–17m/7–8w* seems high **133** *10c "horizontales"/w* secondaires **137** *12c "amphibole"/w* Diorite **144** *15u "Teneriffe"/w* TolimaO
℘

vol. 2 NB 320; 331; March 57 O/
320 *12–14m/13w* 1200–1500 **327** *wt¢¢, 13m/u "260–270", 15–16w¢¢* **328** *15–18md, 19–20m* **329** *8–12m* **331** *7–13m/10–11u "d'un | la"/12a "Barrière"/w* 1560 *13a "Mysore"/w* 2400 **361** *wb¢¢* **385** *10–15m* **386** *1–20m*✍ **387** *15w* 62d **560** *15–19w♦/wb♦¢¢* **621** *18–19m*

HUMBOLDT, Alexander von *Personal narrative of travels to the equinoctial regions of the New Continent during the years 1799–1804, by Alexander von Humboldt and Aimé Bonpland* trans. M.H. Williams, 7 vols.; London; Longman, Hurst, Rees, Orme & Brown; 1819–29 [CUL, pre-B and on B; vols. 1 and 2 (1822, in one binding), vol. 3, 3rd edn (1822), vol. 4, 1st edn (1819), vol. 5, 1st edn (1821), vol. 6, 1st edn (1826), vol. 7, 1st (1829); I in vol. 1 by Henslow: J.S. Henslow to his friend C. Darwin on his departure from England upon a voyage round the World 21 Septr 1831] [CUL]
af, beh, br, cc, co, cs, ex, fg, gd, geo, gr, ig, is, mg, mhp, no, oo, se, sp, sx, sy, t, v, ve, wd

vols. 1 and 2 NB 177, 186
SB
Vol I p61
121 top
123 bottom
Abstract at end of last Vol
125 m
195 m
262 b. The diffusion of volcanic Dust explains diffusion of Lichens.
270 m.– an oak allied to that of Thibet. How transported was acorn – Volcanos show elevation, this subsidence – hence Continent extended nearer.– Pidgeons bring grain to Norfolk – Maize to Arctic America Nutmeg – Grain like fishes falls in India. (a)
274 – When studying Geograph of Canary Botany look to this part.
⟨over⟩
(a) Bruce describes East of Nile daily, whole troops regiments of enormous dark glittering ♣ pillars of sand, raised by whirlwinds
274. Camels abundant in Fortaventura & vegetation different than from ♣ other Islands – N.B Numerous wild asses formerly in Fortaventura. Vide Early part of Chapt.
⟨line across page⟩
2d Vol
p269 – Goats; 276 t.–

vol. 1, 60 *28–30m* **61** *16–21m* **98** *10z* **171** *16–29m/19m/"...*✍ **172** *2m/..."*✍ **199** *15–16m/w* Geology **203** *23–24m* **205** *21–20z* **212** *10–13m/w* quote on craters of elevation **219** *9–11w* A **222** *11–15m/w*✍ A **240** *8–12m* **262** *19–27m*

vol. 2, 9 *4–20w* 35° to 25 or perhaps 30 to 20 called by seamen Horse-Latitude because subject to calms in which horses die for want of water, food & are thrown over ✂ **19** *5–9w¢¢* **177** *wb* 6 in year **186** *7–9m* **187** *24–26m* **207** *4–19m* **208** *9–17m* **209** *15–19* **210** *1–6m* **213** *5–14m* **214** *19–22w* Agrees with equatorial rise *20–27m* **217** ✍ *4"..., 12–27m, 28–31.circled* **218** *4..."*✍ **219** *21–28m* **224** *17–21m* **225** *3–21m, 7w*✍ <u>February</u> *19w*✍ (1797)? *20–21w¢¢, wb* Guadaloupe to Quito 1650 miles in Borneo○ Rialza to ● 53° of Lat = 3180 m ✂ **226** *wt* (a) Guadaloupe & Cumana 400 miles St Vincent to Caraccas ♣ 370 – *3–11m/w* About 400 miles *16–20m/?* **227** *12–19m, table.w/wb*♦*¢¢* **229** *3–16m* **269** *19–23m*

vol. 3 NB1 July 6 1881 to p417; April 3 1882 finished
NB2 360; 383; 491, 2, 8, 9
SB
14B Allude to this, when saying, the causes of the progress of intellect from Monkeys to Man is inexplicable.
p42. Aug 1872
48. M.
63. note
71 Mr Milne
P.205 Sleep of Leaves
106. t
227. M & note. like Indian Castes
229 b. expression thinking
234
360; 383 <u>Q</u>; 491–9 ☞ <u>Silla of Caraccas vegetation</u>

48 *9–14m, 15–17m* **106** *6–12m* **205** *20–28m* **227** *18–24m* **229** *19–30m* **316** *wt*● **332** *25–30z* **333** *1m, 25–29z* **360** *wt* Thus man has trained plant to its own destruction.– Nature makes seeds <u>somewhat</u> palatable to ensure dissemination *5–9m* **383** *wt* Birds sing better in one district than in another *5–18m* **491** *1–13m* **492** *1–4m/3–4w* see (a) **493** *12–20m/12m/w* (a) *17–18m, 21–23m, 23–26m/w* ? do not understand <u>See original</u> *wb* (a) Have not probably plants migrating <u>from</u> equatorial mountains to both temperate zones & not vice versâ – **494** *6u "befaria"/w* spec. different V x 497 *11–12m* **495** *8–13m, 14–18m, 22–26m* **496** *2m, 5–6m, 10m, 12–21m, wb* a rising mountain, (like isld in midst of sea) affords a station free for seeds to germinate, from other mountains.– We may consider all seeds equally wafted, but their growth in most cases is prevented. **497** *1–21m/5w* x *wb* The distrib. of alpine plants, (considering elevation) can only be compared to imagining case of new continent. A desert isld has never been found.– **498** *1–4m* **500** *wt* The Befaria is other species *2m, 11m, 15m* **520** *12–15m, 21m, 22–23m*

vol. 4 NB 84, 6; 106; 111; 173; 231; 333; 336; 351; 380; ♦ 384 Geolog. Cop.; 422;

437; 441; 447; 459; 484; 489; 506
p.466–522 ornamentation by Savages
527 Tears Monkey; 528 – recognizing pictures of insects
5 *11–25m* **6** *3–8m* **11** *8–16m* **20** *14–19m* **21** *1–8m* **27** *10–14m/w* 630 miles **29** *17–20m* **30** *1–18m/4–6w* with Chimbrazo **32** *29–32m* **36** *13u*✍ *"1796", 17u*✍ *"1796"/w* 4.1797 *28u/w*✍ *"1811"* ? 1812 *30u/w*✍ *"1811"* ? 1812 **45** *20–29m* **46** *1–15m* **84** *18–20m* **106** *1–3m* **111** *18–21m* **112** *1–2m* **116** *11–15m, 12–14m* **173** *15–21m* **231** *13–24m* **232** *8–11m/8w* V 246 **246** *2–9m* **333** *19–24m* **336** *18–19m/u, wb* in Paraguay cannot run wild **351** *29m* **380** *14–17m* **384** *13–18m/14–15w* Like Patagonia **422** *15–20m, 18–19m* **437** *22–30m* **441** *24–28m* **447** *18–20m* **459** *28–30m* **466** *14–17m, 17–24m* **489** *11–13m, 16–20m/17–18u "three*\|*tortoises"/20u "thirty*\|*millions"* **490** *11–13m, 19–21m* **506** *1–5m* **514** *7u "furnishes*\|*colour"* **515** *5–9m* **518** *17–22m* **522** *11–16m* **527** *7–11m, 16–17m, 22–28m* **528** *23–29m* **556** *11–28m/15–19u*±

vol. 5 NB 79; 80; 81; 98; 101; 107; 110; 161; 180; 193; 221; 352; 410; 440; 503; 540; 565; 585; 590; 620; 672
17 *20–23m* **18** *15–19m* **24** *15–17m/w* Yes **25** *1–3m, 11–13m* **26** *19–22m* **79** *3–4m/w* like Guanaco **80** *18–20m* **98** *13–20m* **101** *11–14m, 19–22m, 24–26m* **107** *1–4m* **110** *24–28m/!* **161** *17–21m, 27–30m* **180** *6–21m* **181** *26–28m* **183** *14–17m* **193** *6–10m* **221** *24–30m/w* & M◗ & p.225 **222** *1–2m* **225** *14–19m* **352** *3–7m* **410** *2–8m* **440** *3–14m* **454** *1–6m, 1–25m* **456** *2–12m/2–5w* Chili **457** *1–2m* **459** *1–11m* **503** *8–16m* **540** *11–15m/w* V p543 **541** *16–19m* **543** *5–12m/8u "squirrels", 8u "parrots"/9u "macaws"/7–8w* so dispersed **565** *10–16m, 17–20m* **585** *5–25m/9–22w* good to give idea of number **590** ↕*w* To show how animals prey on each other – what a "positive" check. *8–20w* Think of death only in Terrestrial Vertebrates ↕*w/wt* Smaller Carnivora – Hawks – What hourly carnage in the magnificent calm picture of Tropical forests. Let him from some pinnacle view one of these Tropical how peaceful & full of life *23–25m/wb* Probably two or three hundred thousand Jaguars in S. America What Slaughter! Daily – & as many Pumas **620** *10u, 12–14m/w* 33yr **672** *3–9m*

vol. 6 NB1 Nothing respect to Species Theory
Granitic areas of Parime p526; p604
NB2 390 Geolog – before any general view & Patagonia
71 *17–32m* **73** *1–6m, 10–26m* **74** *4–7m* **99** *26–30m* **100** *1–16m* **101** *19–23m* **102** *14–30m* **part 2, contents page** *p. 391.m, p. 624.m* **409** *wt¢¢,*

20–29m/"..." **411** *15–19m* **417** *1–10m* **421** *13–14?* **422** *16u "Vincamarca", 17–21m/"..."* **423** *16–29m* **425** *2–8m* **441** *18–30m* **461** *1–11m* **464** *1–3m, 19–30m* **465** *15–18m* **466** *1–7m* **471** *17–19m/"..."* **503** *12–13w* 300m 600 *16–22m* **504** *2a "25,000"/wt* some error **519** *1–10m* **526** *15–17m, 22w* 1020 *23–30m/26w* 420 **527** *1–8m, 1–18m/8–17m* **529** *7–27m* **531** *1–16m* **532** *1–30m* **533** *1–29m* **535** *1–18m* **543** *1–21m* **579** *2–29m* **581** *1–5m* **582** *8–25m, 22–25m* **583** *1–12m* **586** *1–5m* **591** *1–30m* **592** *1–30m/1–16m/11u/?, 19–30m/w* I think most decidedly so Either way, but in each spot one direction far more prevalent **593** *1–3m, 6–9w* not necessarily so, but since appears frequently to happen *17–18w* Change as gradual or sudden *19–20m, 28–31m, zb* **594** *1–30m, 9–10m* **595** *zt, 1–28m, 16–18m* **596** *1–29m, 17–25m, wb¢¢* **597** *1–3m, 8–9w¢¢, 23–28m, wb* n.28 **604** *24–31m, 24–25m, wb* p504 25000 square leagues **609** *21–25m* **631** *11–20m (von Buch)* **645** *13–20m, 20–25"..."*✍ **646** *6–10m*

vol. 7 NB 51 – Coral
86 – to 90, 291, 309, 320
75; 439
SB ❑β
Humboldt Vol. I
275 – Suggests the former union of Canaries with Mainland
Vol. 3. p48 Male animals giving milk
106 The male wh. reasons best
227 good remarks on races of Man, especially in mountains, who do not intermarry with others keeping uniform.
383 Monkeys differ in disposition greatly – from certain isld can be tamed easy
360 Birds ♣ destroy corns owing to goodness of seed.–
492 Violet on Peak of Teneriffe common to Pyrenees
493 Silla of Caraccas has alpine plants of same genus as lowlands
497 On relation of Befaria of Caraccas, are specifically different from those of Bogota
Vol 4 p.173 Gyrocarpus, one S. America – 1 India – 2 Australia (Has been put into many orders) some have made order for it & one other genus
p336 wild cattle on Llanos, in relation to Paraguay
422 Alligators males kill each other in love-season (Ch.6)
489 Turtle ♣ lay 100–116 eggs.–
Vol 5 101 The Pulex penetrans distinguishes a new arriver from Creole
193 On great destruction of Cattle, so that Farmer beggared by Bats, & those increase favoured by Drought – lilyO?
352 Birds do migrate in Tropics
410 Near social plants, generally a few stragglers, at least with trees
503 The Colchicum always solitary amongst grasses: allied plants social.
591 Black Jaguar said never to mingle with others (vars keeping distinct
Vol. 6. & 7 Nothing

51 *16–26m/25c "fathoms"/u "20|30"/w* ??? feet **52** *1–15m/8?/8–9u↔/9?/11c/ w¢/*Q *25–30m* **53** *28–31m* **54** *1–25m, 26–27m* **55** *26–28m* **75** *14–17m* **87** *9–30m* **89** *3–23m* **134** *3–34m* **291** *4–21m* **309** *4–29m, 27–28m* **319** *9–21m* **320** *1–25m, 21–26m* **369** *13–14m* **434** *21–25m* **439** *4–11m* **480** *1–14m*

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fo, geo, mi, se

vol. 1 NF Height of town of Lima above Callao. 582ft p25
Fall of R. Magdalena in feet – p23
✍ p.63. Elevated Shells
63 *1–13m*

vol. 2 NB Tome Saltpeter Concepcion
259 *4–9m, 12–19m* **261** *6–16m* **345** *4–6m, 33–36m* **346** *12–20m* **347** *5–13m*

HUMPHREY, George Murray *Observations on the limbs of vertebrate animals* Cambridge & London; Macmillan; 1860 [Down, I]

NB O/

HUNT, Robert *Researches on light in its chemical relations* 2nd edn; Longman, Brown, Green & Longmans; 1854 [CUL]
cc, gd, hy

NB p.215 to p.239 (p.238 Abstract); p.376; p.378
217 *1–3m (Daubeny), 5–8m/8u "its illuminating"* **226** *1–12w* Salt those plants as Silene which have maritime species *13–20m/21–23m/24m/14–24w* one might alternate the glasses **229** *25–28m/w* when **234** *36–37m* **235** *1–3m, 14–16m, 19–23m* **236** *12–16m, 32–37m, wb* This wd do instead of picking off flowers **237** *wt* Look over annuals & consider which are easiest raised. Werner looking glass? *7–11m, 10–11m/w* (a) *14–20m, 15–18m, wb* Make Hybrids under red glass. **238** *9–10m, 22–36m, 23–36m* **239** *15–16m, 24–26m, 29–32m* **376** *5–10m, 17–22m* **378** *4–19m* **379** *27–32m*

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OWEN, Richard *The introductory lectures on the Hunterian collection of fossil remains* 2 vols.; London; John Van Voorst; 1861 [CUL]
beh, cs, ct, em, he, phy, sx, tm, v, wd

vol. 1 NB Add to Hubers case –p.50 Wasps recognizing each other like by ants
Expression 144 Relation of lapping & sucking with form of lips, so as to expose teeth
185 Oxen compared to Cows & Bulls of same breeds with respect to neuter males
⟨line across page⟩
Sexual character
◆ p185 → 236 Castration of Bull, short curled Hair on face
◆ 194 Zebra painted for Ass – very good
245 On split Lizards tail will form 2 tails Pangenesis
267 Expression
Hunter remarks p.194 male more eager than female p194 ||"she requires being courted" to give her desires."
p236 Description of Eunuch

xiii *3–14m, 17m, 34–40m* **xv** *8m, 9–13m, 24–30m* **45** *1–3m* **50** *27–33m* **144** *2–14m* **185** *24–29m/w* Oxen of Black Cattle larger than male & female *42u "and | not"* **194** *18–20m, 22–27m, 28–30m* **236** *1–12m, 14–23m, 26u "his | curved"* **245** *20–24m* **267** *31–32m*
℘

vol. 2 NB p.2 Negro small extremities & Head
p.135 Musk Deer has ruminant stomach in embryological condition
322 Geese crossed with wild
461 ✎Humble-bees 6 or 8 different sizes in Workers
2 *20–35m* **3** *1–7m, 14–19m* **135** *35–38m*

HUNTER, John *Memoranda on vegetation* London; Taylor & Francis; 1860 [CUL, I]
phy

NB 1 proof that ♣ shoot in same line with trunk does receive more sap than laterals; *⟨also w by FD⟩*
1 *17–19m*

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beh, pat, sp, v

NB 24 line on page & rather narrower lines Sir B. Brodie
SB1 ❑β
39 Pointer which not taught wd move round to opposite side of thicket Q
46 Retriever killing one Bird to bring other Q
111 Dog running straight to bring anything dropped & not on trail
144 Puppy pointing by self Q
279 Different breeds of Dogs more liable to distemper Q
Hutchinson on Dog
SB2 33; 39; 46; 111; 143; 279

9 *25–26m* **33** *23–25m, 26–28m* **39** *25–28m* **46** *8u "two partridges"/12–17m/"...", 19–23m/21c¢/21–22"...", 1–26w* Colquhoon Moor & Lock – exactly parallel case **48** *7–12[...], 17–23[...], wb* 231 words **111** *10–25m* **143** *19–24m, 27–31m* **144** *5–6m, 10–12m, 14–16m* **279** *27–31m, 40m*

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beh, cc, phy, ta, v

SB ✍ Ch. VI; 285 with respect to pigs attributes the result to fat. *; 297 M. Legrain; 302 Reference to Journal
86 *1–9m, 7–10m/8u "relative ages"* **138** *3–6m (Darwin)* **142** *23–31w* animals have no such horror **143** *25–32m* **146** *25–26w* oh **152** *20–23m* **157** *28–31m* **272** *20–22w* began with 300 sheep *24–28m* **274** *17–23m/22u "sign | degeneration"* **278** *21–32m* **280** *18–22m* **281** *13–17m* **282** *4–22m* **283** *5–8m* **284** *22–34w* differences in different animals like difference of withstanding changed conditions **285** *25–31m* **286** *7–15m* **291** *5–10m* **295** *1–15m* **299** *1–6m/w* 3 generations of Brothers & sisters *7–20m, 19–22m* **300** *3–4m/3u "fifth generation", 27m/x, 31u "paired"* **301** *1–2m, 14–16m* **302** *3u "sixth", 7–14m* **305** *14–18m* **307** *18–21m* **312** *23–28m*

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gd, h, sh

NB 202◆
SB1 ❑β
202 case of Shell, which can bear heats of

plain & ascends above 10,000ft of Himalaya
SB2 202; 408; 407; 410; 413
202 *25–27m*/Q **407** *6–11m* **408** *1–4m/w* antiquity of man **410** *1–5m* **413** *10–13m*

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gd

NB Good facts in last chapter on Geographical Distribution – Japan & S Hemisphere &c &c
8 *1–2m* **10** *14–15m* **17** *18m* **19** *21–24m* **20** *9–10m, 23–24m* **22** *7–9m* **31** *17–18m* **32** *26–27m* **33** *13–14m* **35** *7–12m* **36** *10–12m* **39** *4–6m* **43** *8–9m, 10–12m* **71** *17u "fibrous tissue"* **99** *3–8m, 11a/c¢, 12c¢/"..."*

HUXLEY, Thomas Henry *Critiques and addresses* London; Macmillan & Co,; 1873 [CUL, I]
t

NB1 ⟨*by FD*⟩
NB2 287 Material & formal morality <u>Used</u>

HUXLEY, Thomas Henry *Critiques and addresses* London; Macmillan & Co.; 1873 [Down, ED, I to ED]

HUXLEY, Thomas Henry *Evidence as to man's place in nature* London; Williams & Norgate; 1863 [CUL, I]
af, beh, em, h, pat, phy, sp, sx, t, tm, v, y

NB ♦ p.65 Diameter of H. Ovum
74–73 ribs; p.110 Owen's quotation
SB1 23 specific characters which <u>man-likes</u> have in common
24 affinities
27? 26 when possible (Dutch)
X 38 Expression
Boston Journal Nat. Hist. vol IV & 1867 ⟨*he means 1847*⟩ Dr Savage (p.211 Huxley 46 do.)
X 48 <u>Expression</u> picking up 50
49 Polygamous
65 to 119
Look at all scores before writing about man
137 Correlation of frontal sinuses & strong muscles
144 good reference (p.46)
153
♦ Reduction of Wise-tooth
SB2 Man 34 43♦✍

Species th 40 ✍ variability in skulls of ♣ Orang
Read Lubbock – Wallace – Lyell – Prichard – Pickering – Loring○

21 *32–36m* **23** *21–35m/25u "their | than"* **24** *8u "possess callosities", 10–12m, 14u "into | excrescences", 27–30m* **26** *1m* **27** *9–12m/w* masculine chants *13–14m* **33** *15–20m* **34** *1–3m/1–2u, 4–7m* **35** *16–21m, 27–32m* **38** *12–13m/w* The expressive face of young Orang *32–37m* **39** *17–19m, 21–24m, 27m* **40** *17–22m/22–28m/14–28w* Important as bearing on causes of difference in Man **41** *32–34m* **43** *19–21m/w* warts? *33–36m* **44** *8–9m, 15–17m* **45** *3–6m, 30–31m* **46** *1–4m, 35–36m, wb* On Chimpanzee p.21 **48** *18–21m/19–20u*↔, *20–26m, 26–30m/27w* Expressions **49** *20m/u "the | sex"/w* Polygamous *21–23m/w* sexual selection **50** *5u "a | yell", 8–12m* **52** *7–9m, 13–14m* **59** *16–23m* **65** *19–29m, 34–36m* **67** *19–22m* **70** *9–12m/1–11w* Key-note of Book *26–28m/w* Africa **74** *31–35m* **77** *4–7m* **81** *4–7m* **84** *1–7m, 10–15m* **90** *25–28m* **91** *4u "to | deep", 6u "as | man", 18–20m, 19u "a | foot", 29–32m* **92** *13–16m, fig.w* fig.20 **93** *1–2m, 3–7m, 14–17m* **94** *6–9m, 12–16m* **95** *11–15m* **102** *1–6m* **103** *14–17m* **104** *zb 20–25m, 27–32m, zb* **106** *11–16m* **109** *18–23m* **110** *16–19m, 28–37m, 28–30u "conceive | growth", 31u "or | degree"* **111** *1–4m* **119** *2–7m* **137** *6–29m* **144** *35–36m* **153** *13–36m, wb* Skulls in some races fixed in others variable – Rutimeyer wrong about Orang brachycephalic

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em, h, phy, rd, sp, sy, t, tm

NB Sp Theory
p.53 Natural system?
65 – Digit in Fishes
73 Mammary Glands
77 to 85 on Classes
87 Class of Mammalia
93 Placenta – 99
class of 99 Man♦ Primates

6 *wb*♠ **53** *32u "rudimentary"/w* nascent **65** *4–8m* **73** *21–23m* **77** *25u "Articulata", 26u "Arthropoda"* **78** *13–14m/13u "Annulosa"* **81** *8u "Echinodermata | scolecida", 18–21m/19u "Annuloida"* **85** *29–30w*♠, *29m, 30–31m/w*♠ **87** *15–18m* **88** *13–15m* **89** *1–4m* **93** *1–10m* **99** *4–10m, 17–19m/18u*↔

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oo, tm

vol. 1 title page *5–12m* **16** *19–20z, 29–32z* **20** *19m, 21–26m/22u "limits"*

vol. 2 NF *⟨not CD⟩*
38 *25m* **48** *1m*

vol. 4 NB Phil 1813

vol. 5 NB1 Fan-tail have tail & feather fixed in relating points; 111 too strong; 113; 122 very good on Relations of all Beings in struggle of life
NB2 122
111 *27–31m* **113** *8–9m/9u "absolutely | one"* **115** *2m* **122** *2–32m*

vol. 6, 143 *1x/u "Sanscrit"* **151** *8m/w ⟨not CD⟩, 28m*

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NB O/
⟨other marks by FD⟩

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af, fg, phy, tm

NB ◆ 15; 19; 62; 69; 72; Character of Fishes Birds; 288 *⟨by FD⟩*; 140, 143 visceral arches; Have read the last Ch. p.298
SB ➾
15 Sponges true sexual Process
19 Infusoria do
62,64 Fishes & Amphibia hardly distinguishable – (good case telling how unlike say a Frog & Salmon.–)
69 Birds are aberrant Reptiles.
70 Hiatus between Birds & Mammals.
72 Mammae extreme modification of sebaceous glands–
298 Result on homology of skull compared with Vertebrae

15 *29–33m/29w* Sponges **19** *4–7m, 10–12m* **62** *26–37m* **63** *1–36m* **64** *8–16m* **69** *9–12m* **70** *35–37m* **72** *11–15m* **75** *29–30m/29u "Arthropoda"* **76** *18u*✎↔ **81** *9u*✎ *"Coelenterata"* **80** *8–13m/w*✎ Molluscoids *31u "Molluscoida"* **140** *11–21m* **289** *1–3m/1c/w¢/3c/w¢* **298** *2–7m*

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fo, ig, tm

NB p174; 248; 375; 387; 461; 469; 482; 484; 486; 491; excelent abstract of the Anatomy of Apes
SB ✍
174 gradation in characters of Vertebrata of Amphibians in amphicoelus nature
375 Intermediate types, Hippotamidae
387 Toxodon show how impossible to construct animal from parts of skeleton
461 on outer & upper incisors some falling out in certain Lemurs – Others permanently have only 2.

76 *2–4m* **79** *zb* **115** *30–36z* **174** *22–28m* **248** *36–38m* **375** *32–38m* **387** *16–25m* **409** *32–36m* **461** *35–37m* **469** *1–3m/3a "Cynomorpha"/wt* all ● **482** *7–14m* **484** *37–39m* **486** *30–37m* **487** *18–21m, 27–37m* **491** *30–31m* **492** *12–16m*

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NB O/

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geo

NB 10 variation of compass
10 *17–20m*

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cc, cs, fg, fo, gd, geo, gr, ig, mi, no, sp, y

vol. 1 SF ✍ Paper Boards in volumes; L'Institut & Year on Back
SB ❑β
255 ⟨*he means 253*⟩ Mammales of W. Indies – a Sorex in Cuba & Rodents
285 Blocks of <u>Granite</u> in S. Shetland – proof of S. Continent

149 ✍ *wt* Humboldt *wt* Andesite Mexican albitic Trachyte **156a** *17–25m*✍, *17–20m* **173** *wt*✍ Edwards on Corallines **192b** *3–13m*✍ **205b** *26–38m (Lartet), 39–54m* **206a** *6–17m* **243a** *2–70m* **243b** *4–62m (Buffon, Lartet)* **247b** *47–59m*✍ **248a** *66–71m*✍ **253** ✍ *wb* Cuvier says genus Capromys confined to Cuba West Indies Gervais. **253b** *20–40m*✍*/34–39m* **273** *wt*✍ ⟨*names of various metallic salts found in mines*⟩ **279** *wt* Blocks transported on Shetland **283b** *35–43m/"..."*✍ **297b** *51–54m* **315** *wt* 319 320 ✍ Brongniart fossil vegetation **319b** *16–22m* **320a** *63–69m/?* **320b** *44–51m* **321a** *8–20m* **330b** *46–53m*✍*/48–55m (Ehrenberg)* **331a** *50–62m/51–61m*✍ **346a** ✍ *39–46m, 53u "beaucoup | arrondis", 61u "radeaux | glace", 62u "des | d'eau"/w* of facts? *68–71m, wb*✍ surely a local circumstance **346b** *11–15m* **367b** ✍ *27–52m* **369** *wt* Analogy of Molluscs with Vertebrata **371b** *9m/u "centripète"/?* **374a** *22–62m* **405a** ✍ *10–25m* **417b** *47–70m*✍ **418a** *1–38m*✍

vol. 2 SB 221 Cross of Cerf & Axis
274 Bees in Nova Zembla Baer
345 Isopod Crustacea 800 young
408 Prevost has crossed two Ranae, but not toad
49 *wt* 53 **53b** *21–31m* **57** *wt* 58 **84** *wt* 87 **87a** *32–35m* **101** *wt* p106 **106b** ⇑*28–26m*, ⇑*21–23m* **133** *wt* p137 **137a** *10–14m/14u*✍ *"13", 30–32m* **143b** *40–42m* **149** *wt* p154 & 151 **151a** *19–22m (Kirschleger)* **154a** *3–6m* **157** *wt* 159 **159a** ⇑*14–5m* **165** *wt* 169 **169b** *11–20m (Wesmael)* **173** *wt* 175 **175a** ↕*m* **181** *wt* Read 189 *wt* 193 misprint V. **189b** *3–4m, 8–9m, 14–16m, 22–24m, 24–26w* just like Pl✂ *29–33m, 35–39m* **193b** *39–41m* **205** *wt* 207, 211 **207a** *49–54m, 62–67m* **211b** *62–67m* **213** *wt*◆ 218 Geology **218a** *33–41m* **221** *wt* p221 **221a** *43–44m* **221b** *1–3m/3u "zoologie générale" (I. Geoffroy)* **229** *wt* 232 **232a** *28–29m, 32–35m, 49–50m, 54–57m* **233b** *16–21m* **237** *wt* 242 Geology 240 **242a** *4–11m/5u "le | servant"* **255** *wt* 256 **256a** *13–14m/u "par | germes"* **269** *wt* 271, 272 **271** *wb* Nylgerres?? step to S. Hemisphere *wb*•◆ I suppose Nylgerries vegetation is analogous to Cordillera according to Humboldt – European genera, species all different geographically (considering revolution in climate) Mountains of Caraccas, further than with European, like the ✂ **271a** *59–66m* **271b** *5–11m, 30–50w* West Indies mountains in relation to Caraccas – Tierra del Fuego: is more connected *53–57m* **272** *wb* No doubt M Martins paper✎ on the vegetation of Alpine in Europe ✂ **272a** *37–39m* **272b** *7–12m* **274a** *34–36m/w* Means of crossing plants *wb* Look in Index for former paper by M Baer on some plants not flowering **274b** *9–15m, 50–70m* **275a** *10–16m* **293** *wt* 293 **293b** *5–12m, 19–42m* **301** *wt* p303, p306 **303b** *14–16m (Martins)/14–19w* This author wrote in Bibliotheque Genève *20–23w* 2d paper abstracted in L'Institut **306b** *15–18m, 27–30m, 47–51m, 54–47m, 58–60m* **313** *wt* 316 **316a** *63–68m* **321** *wt* 321 **321a** *33–37m* **322a** *42–45m/43u "non | Phoque", 62–65m* **329** *wt* 336 **336a** *23–27m* **345** *wt* p345 **345a** *23–25m* **381** *wt* 381 **381b** *42–43m* **389** *wt* 392, 394 **392a** *58–60m* **394a** *58–60m* **405** *wt* p408 **408a** *14–17m*
℘
437 *wt* 444 **444b** *35–58m, 61–62m, 65–69m*

INTERNATIONAL HORTICULTURAL EXHIBITION and botanical congress London; Truscott, Son & Simmons; 1866 [Down]

114 *35–39m* **115** *28–32m* **117** *30–31m*

IRMISCH, Thilo *Beiträge zur Biologie und Morphologie der Orchideen* Leipzig; Amrosius Abel; 1853 [CUL]
fg, oo, phy, tm

SA ⟨*not CD; pp. 78–9; tr of part of fn; then:*⟩
(Compare A Brogniart's treatise✎ on these plants ety –) that however Brown's opinion (in which Brogniart agrees with him) according to which the fruitful stamens of Cypriped belong to a different whirl, than does the Stamirodium,
⟨*over*⟩
is the one, in accordance with nature – the history of development also most clearly shows.
NB 25◆ Birds nest not parasite; 78 View of Anther in Cypripedium; 55 Epipogum

vii *39m, 40m* **viii** *14m, 26m, 27m, 39m* **22** *23w*
R **25** *36w* not parasite **55** *6–9m* **78** *44–46m*

JAEGER, Gustav *Die Darwin'sche Theorie und ihre Stellung zur Moral und Religion* Stuttgart; Hoffmann; 1869 [Linnean Society of London, I]

JAEGER, Gustav *Die Darwin'sche Theorie und ihre Stellung zu Moral und Religion* Stuttgart; Julius Hoffmann; n.d. [CUL]
ad, beh, cs, no, oo, sx, v

SB ⟨*following from p. 63*⟩ X old Black rat with Aegyptian parent, the colour was not originally black – Now the Hanoverian Rat occasionally produce a blue-black var & it is said this var is rapidly increasing – so that he believes will sooner or later supplant the common brown var.– This he attributes to much greater difficulty in Cats seeing the black var. in the dark in Houses.–
NF p86 Crossed marked Pig ⟨*this book only 64pp*⟩

14 *5–20m* **16** *20–22m*♦ **18** *18–27m* **19** *3–29m* **20** *3–29m* **21** *14–26m* **39** *8–15m (M. Wagner)* **55** *4–27m* **56** *1–25m* **58** *9–23m/12–21w* Measured legs & neck of Flamingos & P. very variable the long-legged being the more numerous. *23–25m* **59** *1–13m/w* The male chosen or favoured by the female *13–26m/w* J; who has had not much experience with animals, ♣ states that he has observed a male silver pheasant which ♣ had been victorious, had been chosen by the female, had its ornamental plumage spoiled & ♣ immediately his rival got the upper hand & led the flock. **60** *22–27m* **63** *24–27m/w*✍ From comparison of X→ ⟨*rest on SB*⟩

JAEGER, Gustav *In Sachen Darwin's insbesondere contra Wigand* Stuttgart; E. Schweizerbart; 1874 [CUL]
ad, beh, br, cc, ch, cs, dv, em, hl, in, mhp, oo, r, sl, sp, ss, sx, tm, ud, v, wd

NB 106 Climbers; 243–244 Expression
SB1 ❐ℜ ✒
p.4 to 16 on ammonites &c changing in successive strata & on variability
p.29. variations which were perpetuated without selection
p.33–39 causes why fruit & flowers not made very large by nature, as under cultivation
40. Selection cannot act on embryo, in relation to environment
48. explains how use increases a part.
52. thinks insects feeding on a new kind of plant, wd gain a new odour & wd then not cross with other individuals

69 Eggs of silkmoth vary in resisting cold
70. Several pigeons killed by Hawks all white or yellow vars.
86 Higher form can adapt Characters & range further??
90. In all divergence there is always advance or retrogradation of organisation
114 nictitating membrane a necessary constituent of Eyelids
SB2 ⟨*an apparently unrelated fragment*⟩
SB3 ✒
on account of view of constant (old) forms & variable forms considers dom. plants & ●.– The grain○ a fixed form, but many allies – The ● fixed very isolated – Plants wd be best – Is any cultivated & variable plant monotypic?
✏
p69
p102 good nectar
All marked
p243 Expression
p106 Climbers
⟨*over*⟩ Many marks; p38
SB4 ✍
p.115 on use of skeleton of Vertebrates its ground-plan.–
p.130–134 Sexual S. use of barb of fishes as exciting organs.
176 to 183 Each new modification necessarily throws back the embryological stages, unless whole evolution is longer – (not so with insects)

4 *23–28m* **5** *1–3m, 1–23w* It is a mistake to assume all species variable – Yet domestic *20–24m, 28–30m, 34–36m* **8** *23–26m/25–26u "nämlich variirende"* **9** *31m, 33–36m/w/wb* It may be no selection also○ *wb* If all species varied equally all wd be in confusion **10** *5–16m/7–21w* very false calculations. number of species wd not arise Case like Russia○ **11** *29–36m/w* 2 periods 1) of plasticity & 2) invariant **12** *wt* It is strange all animals○ shd have lost their flexibility at same time *5u "Biegsamkeit"/w* flexibility *14m, 18–21m/18–36w* if long exposed to same conditions form hardens & loses plasticity – how came it so many domestic forms vary. *29–30u "sondern l Art"/m, wb* variation makes the form new & vigorous. This is like effects of crossing (a) **13** *12–15m/w* (a) **14** *wt* This is proof that the variable forms have given rise to many species. *1–4m* **15** *8–14m, 20m, 26–30m/w* (a) *wb* (a) Yet Terebratulae very old & yet very variable: so Foraminifera **17** *4m* **29** *7–9w* without selection *15–18m/w* with selection **30** *3–12m/?* **33** *22u "Stiefmütterchen"/11–22w* Not good soil for many generations– often start from too large fruits– Pang **34** *25m* **38** *15–21m, 27–30m/24–36w* no naturalist could improve variability in characters not possessed by the forms **39** *4–7m/1–5w/wt* To make gigantic gooseberry like gourd tissue would have to be allowed & roots for supply **40** *6–11m/w* cannot act on embryo before Birth relation to external conditions **48** *4m, 32–35m* **49** *1–8m/3–5w* blood increases in *33–36m* **52** *12–20m/13–24w* odour of mint probably easily changed, & thus wd not pair with old stock. **53** *29m* **69** *20–26m/w* Eggs varied in their resistance to cold. **70** *13–17m/w* struggle between nestlings & Caterpillar *21w* (a) *wb* (a) found several pigeons killed by Hawks & all were white or yellow vars!! **86** *27–36m/14–36w* Higher forms can range further can adapt themselves more? **87** *8–12m/w* extermination only when(?) **88** *5m/1–8w*♦ On progressive development **90** *6–9m* **92** *1m* **99** *18m* **102** ↕*w* & protected from rain & evaporation & stored for use – & saving of Honey from other preyers *22–27m* **103** *1–5m, 19–22m/w* to decrease number of visiting insects very good **104** *22–31m/8–29w* Thinks visitation by insects searching for pollen might cause secretion of Honey– **106** *24–28m/1–29w* Plants growing in shade have thin stems – a character of climbing plants – no movement of Axes by wind **107** *10–14m/7–28w* Fruits stronger leaves support the plant **114** *9m, 18–19u "nothwendige| Augenlider", 17–21m/w* The nictitating membrane a necessary constituent of Eyelids **115** *24–31m/w* thinks I am wrong **117** *26–26m/29w* (a) *wb* Roaring to disturb prey & then to track them?? & so with Rattlesnake **130** *17–24m* **131** *14–23m* **133** *1m, 4–8m/7–9u, 8–30w* Thinks males are sacrificed to protect female for good of species??? *32–36m* **134** *8–29w* Brillian male butterflies decorated to save females, whilst laying??? **163** *23m* **176** *wt* With each new change – process of evolution necessary thrown backwards – not so with insects *3–11m, 22–25m* **183** *1–7m* **190** *24m* **218** *10–12m* **240** *13–18m/w* Instinct of Dogs to scratch backwards variable **242** *1–11m/2–3w* Expression **244** *wt* good criticism – an habitual movement implies nervous force – I ought to say nervous force independently of any use *3–4m, 35m* **245** *18–19z, 23m* **246** *2–27w* accuses me of confusing Reflex & partO-voluntary movements **250** *17–26m* **251** *10–19m*

JAEGER, Gustav *Lehrbuch der allgemeinen Zoologie* 2 vols.; Leipzig; 1871–78 [Down] ℘

JAEGER, Gustav *Seuchenfestigkeit und Constitutionskraft* Leipzig; Ernst Günther; 1878 [Down, I] ℘

JAEGER, Gustav *Seuchenfestigkeit und Constitutionskraft* Leipzig; Ernst Günther; 1878 [CUL] ℘

JAEGER, Gustav *Zoologische Briefe* Wien; Wilhelm Braumüller; 1876 [Down] ℘

JAMES, Constantin *Du Darwinisme ou l'homme-singe* Paris; E. Plon & Cie.; 1877 [Down]

NB O/
℘

JAMESON, Robert *Manual of mineralogy* Edinburgh; Archibald Constable & Co.; 1821 [CUL, pre-B, S]
che, geo, mi, se

NF1 ✍ Charles Darwin Esq. MD, FRS, ASS??✏ Member of the Royal Medical Society of Edinburgh Honorary Member of the Royal Plinian Society
NF2 Tusus ♣ Contrarius Ceriltrum Giganteum
⟨*u = mainly colours of rocks etc*⟩ **4** *10w* is this emitted from the Trap Rocks near Edinburgh **6** *18w* Is found in the oldest primitive rocks **10** *22–27w* Owes its deliquesance to the Lime & Magnesia Blue & Red colours are owing to the Iron **11** *17w* Rock salt has never been found in Scotland **17** *7w* Sub Sulphate of Alumina **23** *7–8w* Easily distinguished from Marble by yielding to the Nail *wb* Easily mistaken for Satin Spar but can be distinguished by its softness **28** *10–11w* melts like Ice Before the blowpipe *36u "rare/w* very **29** *wt* All Alum is not prepared from this Mineral *29w* Always associated with Volcanic Rocks *31u, 35u, wb* * Fluor – called so from being used as a flux **30** *19–20[...], 19–26w* False Topaz (& according to their respective colour are called false gems.) **31** *10w* Chlorophane **32** *1w* Phosphate of Alumina *wb* Phosphate of Lime was formerly thought to belong solely to the Animal Kingdom: & after that, it was thought to be an animal formation **34** *wb* * First discovered in Arragon **35** *6–18z* ⟨*drawings of crystals*⟩, *wb* Fragments of Arragonite will scratch Calcareous Spar. **36** *3u, 29u, 30–31z* **37** *2w* Iceland Spar **38** *20–21w* Never contains organic remains **39** *wt* A block of Statuary Marble values 200- *4–11w* while marble equal to the Sarian is found in small pieces

in Sutherland **40** _34m, wb_ The Break-Water at Plymouth is composed of this rock; & therefore is much attacked by the Pholas. **41** _wt_ Sometimes this limestone contains fragments of shells such as the Nautilus &c, & gives rise to a very beautiful appearance.– it is called Fire-Marble _20w_ Is supposed by some to be of volcanic origin _21*, wb_ * It is disputed whether this mineral is caused by fusion; or by fragments of a broken strata ejected by the Crater **42** _18m/z, 19–21w_ Formation of distinct concretions _29w_ occurs only in Secondary rocks _wb_ * Is only found in very small quantities in Scotland; but is found in great quantity in England **44** _1–4w_ The Flint only occurs in 3 upper deposits _9w_ The newest of the Secondary Rocks _11u, 19w_ Extends from Flamborough Head down to Sidmouth _20*, 20–21w_ so-called because it is found emitting through rocks So called from Agaric **45** _3–4u/w_ in Salisbury Craigs _11–12w_ does not yield to the Nail.– _31w_ is continually forming **46** _7–9w_ generally diverging _32*_ **47** _24w_ * Nearly all Rome is built of a compact Variety of this Mineral _28–30z, 31–33w_ Formation of the Concretions **48** _31*, wb_ * Easily know by its pearly lustre **49** _24–26w_ * So called from Lucullus a Roman Consul who proved these sorts of Marble _33u "fetid"/wb_ Owing to Sulphurs Hydrogen _wb_ * If the variegated specimen be immersed in weak Muriatic Acid The limestone is dissolved, but the animal matter remains.– **50** _22w_ Owes its colours to bituminous matter _26w_ Often globular **51** _19–27z_ **52** _wb_ : It is Carb. of Lime with Alumina & Silica met with in the Coal Series **54** _17w_ also accompanied with Copper Pyrites is called Copper Slate _20–23w_ Owes its dark colour & bad smell to animal matter **55** _wt_ Extends for a very great distance in Europe & varies extremely in thickness _5w_ Magnesian limestone _13–14w_ Called so from Dolumin a celebrated French Geologist _22–25w_ Is harder & heavier than limestone _30w_ sometimes it is slightly flexible _31–32u_ **56** _7u, 16*, 18w_ Only occurs in Secondary Rocks _wb_ * The Cathedral Walls of the City of York are built with this mineral **57** _11u_ **58** _16u_ **59** _16u_ **62** _27–28u_ **63** _14–15w_ The Damascus Steel is supposed from this mineral _29u_ **70** _1–3m, 28w_ from Dr. Withering **71** _30w_ 2 also in Shropshire **72** _20–21w_ Something similar to Porcelain Earth easily distinguished by its great Sp. Grav. is called Cawks **74** _11w_ Is of most common occurrence **77** _wb_ Calcareous. Fluor. Heavy. Spar. often occur together **78** _14–18w_ Alestone looks like some varieties of Quartz. but of course much softer called so because the first kind that was described was of a blue colour _wb_ (The term Sparry is nearly synonymous to Foliated) **82** _4*, 34–35u, wb_ * Occurs most abundantly in the upper parts of the vein **88** _3w_ has lately been met with in Brazil _4*_ **89** _wt_ * Have not I a specimen of this in my Cabinet? _wb_ (Nearly all these Lead Spars are daily forming: thus Spades &c have been found coated with Carb: of Lead) **98** _17w_ Carb: of Copper **106** _4w_ to shine _14w_ Arceniate of Copper _20u, wb_ * By a late Analysis appears to be Phosphate of Alumina **107** _7w_ * Phosphate of Uranium **108** _5–9c_ **114** _4–7z_ **115** _17w_ x Phospate of Iron Vivianite _x/zb_ **118** _1u, 2u, wb_ Occurs in isolated irregular pieces in different strata.– **119** _5w_ Talc is derived from a Japan word meaning Tallow _12u, 13u, 18w ⟨Greek⟩, 25u, 26u_ **120** _9–14w_ Nearly always contains Magnetic Iron Ore **121** _4–9w_ often accompanies & is intermixed with Shock-crystal _24a/w_ dark copperish **122** _14w_ in Calton Hill Arthur Seat Pentland Hills when heated changes into a red which is used as a pigment _26u/w_ pearly _35u, 36u_ **123** _wt_ Crayons are prepared from produced Talc mixed with the various colouring matters _17w_ The Chines ornament their walls with ground Talc _wb_ (Rouge is made by extracting the colouring matter from Saffron by Carb. of Potash praecipitated by Acetic Ac. ♣ sediment is well mixed up with powdered Talc) **124** _2–3w_ made into Culinary Vessels _12–13w_ Used for coating Furnaces in Norway **126** _5w_ & in by ● Shropshire **127** _10u, 14–15w_ Case 2nd of the Museum begins here _32u_ **128** _18–21w_ occurs sometimes associated with Volcanic Rocks _35w_ * from its scaly structure _wb_ very beautiful **129** _5w_ rather unfrequent _26u/w_ X Foliated Structure **130** _7w_ lustre inclining to Metallic **131** _3u, 28*, wb_ * looks like Bronze **132** _15u, 30u/30–31w_ Copper colour **133** _12u, 16w_ occurs as a constituent of Greenstone **134** _16u_ **135** _11u/w_ colouring matter _32–33m_ **136** _20–24w_ Called so from a Dutch officer who first discovered it in the Cape of Good Hope ⇑_6x/wb_ x generally botryoid & internally diverging **138** _17u, 28w_ rests upon Calcareous Spar in drusy Cavities **139** _31u_ **141** _5u, 6u/6–10w_ named White Garnet generally assuming the form of Garnets _12u_ **142** _2u/*, 4–6w_ * The lava generally contains a good deal of Soda. whereas the leucite contains only Potash _22u_ **143** _34–36w_ The crystals are generally twin placed cross-wise **147** _12–15z, 12u, 16u_ **148** _wb_ (Supposed Zeolites to be formed by infiltration) **153** *4w* Warellite. Appendix II P333. *9u/w* Signifies a Rock **154** *13w* from the mountain Adula **156** *6w* appears to have suffered heat *22w* One of the most abundant minerals in the Crust of the Earth **157** *9u, 26–27w* contains Soda not like the other Felspars, Potash *wb* Potash was first detected in the Mineral Kingdom in the Lepidolite **158** *1–2m/16w* this perhaps ought to be a distinct species **159** *3–5w* Salisbury Craigs * the White variety **160** *1u, 2–5w* Braid Hills Pentland Hill There must be some 100000 tons of Soda in this rock *23w* is met with in the centre of solid granite & deep in mines **161** *28–29w* For the process of making Porcelain see Jameson's System. **165** *3w* from shining *8–9w* The green colour in the secondary rocks of Edinburgh is caused by augite *21u, 34–35m/w* colours owing **167** *11–12w* from Coccus a grain **170** *25u/w* blended in other rocks Refers to its toughness *28–29w* contains much less Magnesia than Augite **172** *6u, 7w* from occurring in Basalt *8u, 20w* Arthurs Seat *27u, 29u* **174** *2–3w* from a mountain in ● land *26u/z* **175** *21–22w* is composed of very minute crystals of White Hornblende **176** *4w* mountain leather *12w* Hornblende *30u* **177** *30w* from Pistachio – green *32u "green"* **178** *33u* **180** *22u* **181** *4w* Lapis Lazuli. App.II P.317.– *10w* from Andalusia in Spain **182** *6–7w* might perhaps used as a substitute for Emery from Saussure. *18–21w* Case 3rd of the Museum begins here.– **183** *wt* * Spinel occurs by far most beautifully near Equator *9w* * Spinel Ruby *12a, 24u/w* Colouring matter *32a/w* The most beautiful specimens *wb* (many gems are composed of Alumina) *wb* * The most beautiful specimens was in possession of Josephine○ **184** *27u, 32w* is highly crystallized Alumina **185** *9u, 27u, 33–34w* must be distinguished from the Spinel is an uncrystallized Sapphire **186** *3w* Chiefly composed of Alumina *10–12w* may be supposed to connect Emery & Sapphire **188** *wt* I think it not impossible that some time Diamond will be found to be a vegetable secretion *2u, 3u, 6u* **189** *15*/wb* * Said by some to have been the universal solvent **190** ⇑*11*/wb* * when polishing on the wheel it flies into pieces which the true Emerald does not **191** *29–30m/30u* **192** *10*/wb* * Beryl is well described by Pliny **193** *3–9w* is an old Saxon word expressing the disagreeable sound caused by the friction of two pieces of Quartz **194** *14*, 17–18z, wb* * It is Silica coloured with Iron Manganese **195** *11w* in its upper part *15–19z, 33–34w* very rare in Secondary & Tertiary rocks *wb* * in Specimens from Dauphigny have one very large acuminating plane the 5 others being almost evanescent **196** *wt* sometimes encrusted & interspersed with Chlorite *8u, 10w* are distinguished from Topaz by inferior Sp. Grav. & Hardness *12*, 18w* never occurs crystallized *26w* Silica coloured by Manganese *wb* * When put in dry places, exposed to the light looses in a few years looses its colour **197** *wt* X The massive variety is easily distinguished from all other minerals by its superior hardness *4–5w* A flexible variety occurs in Arthurs Seat *21w* from its light green colour.– **198** ⇑*11*/wb* * Common Quartz impregnated with Iron **200** *2w* wood petrified with Hornstone *wb* (The Tick tree in Calcutta has been known to form a strong Mineral. like Woodstone) **201** *8u/w* owing to Bituminous matter *12w* is often traversed by veins of white Quartz *17*, 18w* That variety which is free from veins is used for touchstone *wb* * by comparing the streak of the pure gold, with that of the specimen essaying **202** *wt* is of rare occurrence in Scotland owing to the scarceness of Chalk *10–13w* The base of pudding of stone in quartz; the concretions flint *13w* from Calcedon in Asia Minor *16x, 18u/18–21w* where blue is called Sapphirine by the Jewellers *wb* x The dendritic variety is called Mocha Stone from a place in India or from a German word signifying moss, this appearance is owing to Iron & Manganese **203** *1x/wt* x is mentioned by Pliny as a different mineral *4u/w* owing to Nickel *27w* from its colour **204** *14u/14–16w* The green colour is owing to Green earth *25w* origin of name disputed *29u/*/wb* * mentioned by Dr Clarke as occurring near Cairo in great plenty **206** *2x/wt* x Clay long exposed to heat *14–15w* is Quartz combined with Alumina ⇑*4x/zb/wb* x some varieties are called Eye-Stones **207** *wb* (All these Romboidal quartz when heated & thrown into water, splits in direction of its cleavage) **208** *31w* is daily forming **210** *6w* (minute portions have been found in Scotland *30–31w* has lately been found in Mexico & Faroe Islands **212** *23–26w* distinguished from Jasper by superior lustre **213** *10w* in New-Holland *18w* from Menil, a hill near Paris **214** *23–24w* from Obsidian a Roman **215** *5–8m/w* Colouring matter & Carbonaceous matter *16w* often imbedded portions of Pearl-stone *25w* from its resinous appearance *25x/wb* x black colour owing to Carbonaceous matter **216** *3w* in Arran **218** *7w* the crystals resemble the head of an axe

219 *26u, 33*/wb* * Is Chrysolite in a less perfect form. **220** *wt* Meteoric Iron often contains a mineral like Chrysolite or Olivine – *12w* near Edinburgh – Arthur Seat *13w* Borate of Megnesia *29m, 36w* always **221** *15u/w* Bubulite *wb* (Boracic Acid is found in Salisbury Craigs) **222** *11w* occasionally contains a little Boracic Acid *18w* from a village in Saxony. **224** *27w* signifying a Gooseberry **225** *19w* from μελασ niger **226** *2*/wt* * From the different colours it undergoes under the blowpipe **227** *wt* Many of the Carbuncles of the ancients are garnets: the origin of the name signifying its shining in the dark is erroneous, this word sometimes refers to the Quartz & Sapphire **228** *6–7w* from its beautiful red colour *18u, 25w* is called the Bohemian Garnet. **232** *25*/ wb* * not unlike Hyacinth distinguishes from yielding to the knife **234** *9w* from oxide of Titanium **236** *22w* Oxide of Copper **238** *30w* Oxide of Tin **240** *wb* Distinguished from Tin Ore by its stump being of reddish brown colour; Tin ore having a yellow grey colour **243** *1*/wt* Streaks yellowish *33w* (Streaks a distinguishing character) *wb* Occurs in Magnesian rocks. such as Talc & Serpentine.– **244** *5–6u, 10u/9–10w* The magnetic property only occurs in rocks near the surface.– *31w* when pure, affords 70 per cent of Iron **245** *10w* in Salisbury Craigs *14–15u, 28u, 32u* **246** *wt* (The Magnetic Iron Ore occurs in greater plenty in the North. The Specular in the South) *17–19w* occurs in plates in the crevices of Volcanic Rocks. as. Vesuvius *19*/wb* * distinguished from Mica by the rigidity of the Plates **250** *18w* Hydrate of Iron *18*/wb* * Makes better Steell than the two former varieties **254** *7*/wb* * Is well adapted for making cast Iron *8w* is daily forming in boggy places **263** *28w* Occurs in newer formations than the last.– **266** *wt* formed of crystals; in this mineral. by cubes *2u, 13w* because when struck gives out sparkes *19w* Arsenuent of Nickel **273** *2x/wt* x decays more rapidly than the other varieties **274** *18u* **275** *wt* does not afford sparks with steel *10u* **280** *2w* x continues to be formed by aqueous means **289** *24u* **294** *36w* associated with Native Arsenic **295** *29w* along with compact Gypsum **296** *wt* Every time volcano emits sulphur mostly in form of Vapour.– **298** *wt* (all the insects inclosed in amber are extinct.) & different from those now alive **299** *22w* Pitchford & Coal-Brook, Dale **300** *wt* The walls of Babylon were cemented by melted Mineral potash *6u, 19w* Mineral Caoutchouck **301** *18w* the remains of

ancient trees.– **302** *10w* but must be mixed with some connecting matter **303** *31w* common Coal **304** *5w* the most common variety *wb* Is of older formation than the Browne.– (was formed before Mammalia Aves Amphibia but there existed fishes & shells) **305** *8–9u, 29x/wb* x little Bituminous matter **307** *wb* The Browne coals when burnt emit a very bad smell The Glance Coals never contain vegetables were formed before vegetables existed **317** *14–19w* Iron Pyrites is often disseminated in it is then mistaken for gold *23w* * Lapis Lazulis has been met with in Vesuvius *wb* Origin disputed. whether formed. or merely broken fragments.– **333** *6–7z* **337** *22u/w* not homogeneous **338** *34–37z, wb* a basis including crystals **339** *5–8z, 9–11w* a basis containing cavities or other foreign substances of an amygdaloidal form *29–30w* vid: the secondary rocks of Arthur Seat *32–35z, wb* * the grains joined without basis or cement. **340** *10–12z, 13–15w* A Slaty B Granular *17–21z, 19–20u, 25w* of rarer occurrence *26u/w* Base granular *31u/w* Base slaty **341** *2–5z, 11w* of frequent occurrence in the Carlton Hill *zb* **342** *35*/zb* **344** *wb* (Hydrogen & Nitrogen are emitted in greater quantities in some Volcanic countries) **346** *16–25z/25w* Hornblende *26w* Felspar Syenite *wb* (Felspar is distinguished from Quartz by its inferior hardness, yielding to knife) **361** *15w* These four rocks generally occur in the order here placed minute scales of Mica **365** *25w* according to the formation or is this state of crystallization **369** *28w* so called from its resemblance to the colouring of Serpents– **370** *wt* a mixture of Marble with Serpentine is called Verde Antique.– *wb* Magnesia occurs in the greatest quantity in the newer Primitive Rocks as Serpentine **371** *29–30w* perhaps ought to be considered a variety of pormilica Greenstone **377** *5w* is clayslate with imbedded fragments *6–10z* **382** *wb* 1 Old Red Sandstone 2 Mountain Limestone 3 Bed Conglomerate 4 Magnesia Limestone 5 New Red Sandstone 6 Shell Limestone 7 3rd Sandstone formation 8 Oolite 9 (Sand Clay Marl.) Chalk Marl 10 Chalk formation **383** *10w* 1 **384** *wb* It is disputed that this rock is of the primitive series **385** *33u* **386** *4u, 17*/wb* * Sometimes contains Iron Pyrites, which from its decomposing entirely unfits for building **387** *wt* x The Trap in this formation is composed of Augite & Felspar *10u/x* **392** *29w* 7 **394** *1w* 9 *15w* 3 **396** *13w* 7 **398** *5w* 9 *35w* 10 **399** *13w* 11 **405** *3w* an earthy greenstone **410** *wb*

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(These rocks generally occur in the old Red Sandstone also in Mountain Sandstone sometimes in still newer rocks) **411** *17w* Tertiary Rocks **412** *24w* also contains Pudding stone & Browne Coal **413** *9w* * The London Clay is of this formation *10[...], wb* * Iron Pyrites, Sulphate of Lime & Iron occurs in this mineral. also sometimes Amber & Browne clay also various seeds of tropical plants. also Crocodiles &c &c & Cocoa Nuts fishes.. **415** *11w* of considerable importance in the arts for making millstones *26u* **418** *24*/ wb* * The only Human Fossil Skeleton known was found in this rock **420** *3–12w* Beds of this mineral occur in the Meadows & Coates Crescent in Edinburgh *28–29w* differs from Potters Clay in containing Sand **421** *19z, 25m/w* now disputed **423** *10*/wb* * Occurs only the more Northern countries never being found in the Tropics **424** *15w* their variability being diminished *29m/w* 6 **425** *28w* swims on Water **426** *18–20z, 21–23w* the order of their position *28*/wb* * has often been mistaken for red Pumice Stone *34x/wb* x formed by the attrition of different minerals *428 4–5w* appears to have been sublimed *440 wb* The lead mines in Flintshire Shropshire are situated chiefly in Mountain Limestone **444** *16–17w* are mentioned by many of the older writers viz Herodotus observed them in Aegypt also Ovid remarks them. **445** *2–3w* Quadrumana none have yet been found– **446** *2x, wb* Bears are of rare occurrence in alluvial strata **447** *25–26w* Another species has been found Europe simultaneous with the Elephant Tapir Rhinoceros **452** *1–5w* this is the animal that the Indians belief that the Gods destroyed to prevent the destruction of the Human race. *wb* 6 distinguished from the Mammoth by tubercular teeth– **455** *wt* The Owl & Buzzard *22–23w* one have these generally found in the tertiary formations of Paris **456** *7w* in the Isle of Sheppey **458** *wb* The teeth of Sharks are found in great plenty in the Limestones of Malta **460** *11x/wb* x Nearly all insects which are found in this mineral are now extinct, except as some say the common Ant *20–21w* Mr Witham has in his collection a specimen of Amber containing a small skeleton probably a reptile.– *25–26w* In one collection in France there is 3560 specimens and nearly 5000 have been described.– **461** *wt* All the fossil shells are now extinct.– **466** *wb* Fossil organic remains are those included in any formation sometimes they are scarcely altered but generally a portion of the animal matter is extracted often the

whole substance is removed & merely a cast remains sometimes it percolated with some Fossil matter & then it is named petrified.. **504** *7–11m, zb* **505** *whole page.z* **506** *whole page.z*

JAMESON, Robert *A treatise on the external, chemical and physical characters of minerals* Edinburgh; Archibald Constable & Co.; 1816 [CUL, on B, S C. Darwin Feb 13th 1826]

JARROLD, Thomas *Anthropologia: or, dissertations on the form and colour of man* London; Cadell & Davies; 1808 [CUL, pre-B]
h, tm

NB p.87, 90, 110, 115, 116; 191, 192 freckles; 216 grey eye formerly more common
32 *13c* **33** *15a* **87** *28–33m* **90** *15–20m* **91** *16–18m* **110** *20–24m* **115** *20–24m* **116** *10–14m* **190** *32–36m* **191** *1–4m, 24–27m* **192** *28–32m* **216** *10–19m*

JEFFREYS, Gwyn, and CARPENTER, William Benjamin *The 'Valorous' expedition* London; Taylor & Francis; 1876 [Down, I]

NB O/

JENYNS, Leonard *Memoir of the Rev. John Stevens Henslow* London; John Van Voorst; 1862 [Down, I]

53 *23m/]/[...* **54** *4...]/w* B *5–17[...], 18m/[...* **55** *7w* B *7–9[...]*

JENYNS, Leonard *Observations in meteorology* London; John Van Voorst; 1858 [Down, I] ℘

JENYNS, Leonard *Observations in natural history* London; John Van Voorst; 1846 [CUL, I]
beh, em, ex, gd, h, mn, no, oo, tm, v, wd, y

SB1 ♦
<u>Introduction good writing</u>
Squirrel eating little galls
Variation♦
Like your remarks on givens – on statistics
p.162 Martins (1)
210♦ Cy◗ & some Carabus
p313 Mem breaking leg
p315 Planaria (land species)
Barometer Brit. Assoc.✍
⟨*over*⟩ 38; 51 to 60; 76; 100; 108 &c; 114; 131; 137; 147; 150; 162; 168; 188; 210; 221; 216; 266; 278; 290 Arachnidae do not undergo any such metamorphosis; 318; 321; 324

SB2 38 Birds using NQ material at hand & adapting nest to situation
54 One cat rejoicing in Bat, another indifferent to it Ch.6.
Polecat devouring Eels p.55 some parallel facts. Rooks p.150 feeding on Fish p147 on Eggs
78 Rabbits with incisors grown very long – Monstrosities Ch 5
100 Pheasant betraying place of roost Q by screaming (mistake of instinct) ◆ Hen Clucking on Egg
107 On destruction of Rooks & Sparrows & yet no diminution Ch.5
114 Destruction does not fall on very young Birds Ch.5
137 Abnormal NQ nest of long-tailed tit.
162 Caged Birds carrying bits of thread & stick in Beak Q✍
168 Increase of turtle Doves since 1823.
212 Abnormal Gold Fishes
278 Flies hatched in gentlemans intestines.
318 On sudden great increase in Water Shells. Ch.5
321 Ransome case of cistern with molluscs
324 On difference in habits in closely allied Pisidiums.

38 *31–32m/32u "Bolton's Harmonia"* **51** *18–23m* **54** *9–11m, 26–27m* **55** *19–21m* **56** *29m* **60** *1–3m/2u "rare"* **64** *18–19m* **76** *18–20m* **100** *9–11m* **107** *17–21m* **108** *1–12m, 16–19m* **109** *3–8m, 13–23m, 24–25m, 26–31m (Wagner)* **110** *29–32m* **114** *26–30m* **115** *5–18m, 23–27m, 28–30→* **116** *8–13m* **117** *2–3m, 6–7m* **131** *3–5m/w* V. p.134 **134** *7–9m, 19–20m* **137** *15–18m/w* unusual? **147** *14–17m, 23–27m* **150** *10–12m* **162** *2–9m/*Q **163** *7–19m* **168** *6–12m* **187** *19–26m* **210** *24–26m* **211** *11–12m, 15–19m, 32m* **212** *1–8m* **213** *1–9m, 17–22m, 30–32m* **216** *16–19m* **217** *24–25m* **221** *3–7m* **266** *12–15m* **267** *15–16m* **278** *15–16m* **279** *25–27m* **290** *21–23m* **318** *8–12m* **319** *9–11m, 21–22m* **321** *13–17m* **324** *4–7m*
⟨p. 329 ff., markings presumed not by CD⟩

JEVONS, W. Stanley *Elementary lessons in logic* London; Macmillan & Co.; 1881 [Down]

JOHNSON, Samuel *A dictionary of the English language* london; C. & J. Rivington; 1826 [CUL, pre-B]

JOHNSON, Samuel W. *How crops grow* London; Macmillan & Co.; 1869 [Down, FD]

JOHNSTON, George *The natural history of the eastern borders: vol. 1 botany* London; John Van Voorst; 1853 [Down]

JONES, John Matthew *The naturalist in Bermuda* London; Reeves & Turner; 1859 [CUL]
beh, cc, fg, gd, geo, is, mg, mm, oo, sp, ta, tm, wd

SB ❑β, ✍
Jones' Bermuda
ix Sea-Birds tame on discovery of Isd
x Hogs run wild & swarmed p.1. 3 mice
p12 At discovery 1609 no rats & mice
12 to 16 to On migrations of Bats – occasional (like Birds)
27 to 84 Migrations of Birds (p174 Blank season)
30 European Lark killed in Bermuda! p45 Land-Rail do
43 variation in tail-feathers in Snipes
67 case of wanderers of same species as resident
70 case of enormous migrations 72 do
76 probable rate of flight in Plover during migrations 30–35 miles per hour
98 Scincus no Batrachians
115 Honey-bee perhaps Apis caffra
121 Only 3 nocturnal Lepidoptera
133 Antigua Orange-trees all destroyed by coccus p.117 Ants very destructive to Rabbit Poultry
172 Imported poultry all die
190 Sapindus saponaria not growing in foreign Gardens, raised from sea-drifted seeds.– – Gulf Stream occasionally wanders from course & brings timbers to Bermuda
191 At Azores trees torn up by roots & 2 dead were washed ashore (See Bate)
SB2 ◆✍
ix; x in 1609; 11,2 Bats; 12; 27 to 38; Read to 66◆ to end; p190
☞✍ No peculiar Birds; good
☞✍ Audubons flight across Bays cutting off distance explains case.–

vii *4–6m* **ix** *23–26m* **x** *4–7m* **11** ✍ *5u "exception | domestic"/5–7m* **12** *11–14m, 19–22m, 26u±, 27–31m* **13** *9–13m, 17–18m, 26–31m* **15** *4–6m, 12–15m, 18–21m, 28–30m* **16** *20–22m* **27** *4–8m, 24–27m* **28** *25–30m* **29** *3–9m, 8–11m* **30** *10–15m* **33** *17–20m, 23–26m* **34** *10–28m* **35** *14–18m* **36** *22–26m* **41** *22–25m, 27–29m* **42** *9–13m* **43** *4–5m, 12–15m/w* S. Brobsini○ **44** *1–4m, 7–10m, 19–26m* **45** *7–14m, 19–22m* **46** *29–31m* **62** *27–30m* **65** *5–7m* **66** *28–31m* **67** *2–7m, 10–14m, 17–20m/18w* imitation *22u "flock"/?, 25–29m/26x*✍ **68** *14–16m, 19–20m, 24–26m* **69** *4–7m, 24–28m* **70** *3–6m* **72** *5–8m, 15–19m* **73** *4–9m* **74** *27–31m* **75** *22–25m, 29–31m* **76** *15–16m, 30–31m/31u "moderate | thirty"* **77** *8–9m* **80** *17–21m* **81** *22–*

23m/w go to Jamaica **82** *30–31m* **84** *12–17m* **98** *6–8m, 25–26m* **115** *1–4m* **117** *7–10m* **121** *20–21m* **133** *20–26m* **172** *16–28m*✍ **174** *2–8m* **190** *4–6m, 9u "pine timber", 11u "mahogany", 29–31m* **191** *4–8m*

JOURNAL OF A HORTICULTURAL TOUR through some parts of Flanders, Holland and the north of France in the autumn of 1817 Edinburgh; Bell & Bradfute; 1823; London; Longman, Hurst, Rees, Orme & Brown [CUL]
ch, fg, he, hy, spo, ta, v

NB 25,48,84; 67,8; 107; 134–; 178; 185; 193,5; 205; 293,5; 308; 328; 331; 363; 419; 423; 459; 470,72; 495,6; 538 Don on Elms
SB □β
107 Purple Beech Hereditary
185 out of 1000 seedlings 1/2 dozen good Hyacinths & Tulips is reckoned good
196 on the rearing of Tulips, certain whole classes have come a certain Breeder, I may say even in most sportive plants, more hereditariness than generally supposed
293 Brussels Sprout has been true for 400 years 295 a sub-var rendered true
459 Paradise & Doucin original dwarf vars of Apples
495 The varin Lilac Hybrid between common & Persian

25 *7–13m* **48** *12–16m* **67** *3–7m/wt* Weeping Cherry mentioned before **68** *13–16m* **84** *13–15m* **107** *⇑9–6m* **134** *⇑15–10m* **178** *⇑5–3m* **185** *⇑15–13m* **193** *⇑16m/u "J.B. Sickler"* **195** *2–4m/u±, ⇑2m/u "A | explained"* **196** *1–3m, 8–13m, 15–17u±, 18–21m, ⇑11–5m* **205** *10–15m* **293** *⇑12–11m* **295** *⇑15–13m, ⇑4–1m/⇑4u "only | most"* **308** *⇑11–10m* **309** *5–10m, ⇑15–12m/⇑13–12u "proving | bad"* **328** *⇑6–4m/⇑6u "P. | Corsica"* **331** *⇑10m/wb* will here probably treat of change of seed **363** *1–2m* **419** *⇑12–2m/⇑12u "Salix | revolutis"* **423** *1–3m, 6–8m* **459** *⇑6–3m, ⇑2–1m* **470** *⇑2–1m* **472** *4–5m, 14–15m, ⇑7–6m/u "seventy", ⇑2–1m* **473** *6m/u "130", ⇑7m/u "forty"* **495** *⇑2–1m* **496** *10–12m* **538** *10–17m*

JOUVENCEL, Paul de *Genèse selon la science. La Vie* Paris; Garnier Frères; 1859 [CUL]
he, hl, hy

NB 99 highness & lowness; p283 – see Isidore Polydactylism Two cases of mules given with polydactyl Hoof – can this be reversion?
Isidore Geoffroy 1/691 gives several cases ● in pure Horse – so facts nothing
99 *20–23m* **283** *20–27m*

JUAN Y SANTACILLA, Jorge and ULLOA, Antonio de *A voyage to South America* trans. John Adams, 4th edn; London; John Stockdale &c.; 1806 [CUL, vol. 1 only, on B, I by FitzRoy]
beh, gd, oo

NB 9–20
◊ Journal 17.1826
⟨*untranscribed w apparently not CD*⟩
iii *11u "is | remain"* **vi** *wb¢¢* **21** *7m* **24** ✍ *6–7m* **25** ✍ *2m* **26** ✍ *17m, 27m* **27** ✍ *23m, 35m* **28** *25–33w* **29** ✍ *4m, 12–13m, 15–16m, 31m* **30** ✍ *6m* **31** ✍ *9m* **32** ✍ *4–5m* **33** ✍ *20m* **35** ✍ *6–7m, 17–18m* **36** ✍ *6m, 13–14m, 17–18m* **39** ✍ *9m, 27m* **40** ✍ *23–26m* **44** *5–17w* **52** *17–21m, 31–32m* **53** *14–16m* **54** *14–18m* **55** *6–8m, 9–11m, 17–18m* **56** *1–2m* **57** *16–33w* **58** *35–36m* **59** *1–23m* **60** *31–36m* **61** *1–5m, 14–29m/w* snakes in Jamaica **62** *1–21m* **63** *1–6m, 9–18m* **64** *23–25w* Jigger Chigoe **65** *24m, wb* exaggeration of pain caused by insect sting in Carthagena **66** *14–24w* **67** *24–37m* **68** *10–24m* **69** *19m* **71** *5–9m, wb* Thinks mistake They have only one crop in year **72** *11m, 26w* Pineapple **74** *4m, 7–30m, wb* Some description as to planting and mode of gathering is necessary **77** *13–18m* **92** *26–27m/w, 28u "The | irregular", 30–32w* **97** *17w* **123** *27m, 28–30m* **132** *19w* ● **255** *wt¢¢* **277** ✍ *29–39m* **278** ✍ *2–34m, 26–27m*

JUDD, John Wesley *Volcanoes* London; C. Kegan Paul; 1881 [Down, I]
se, ve

NB Volcanoes along coasts, greatest pressure Fissures due to general elevation

JUKES, Joseph Beete *General report of the geological survey of Newfoundland* London, 1843 [CUL.1900] [I]
geo

NB p.130 cleavage
143 Boulders
145 rest on clay &c
130 *⇑6–2m* **143** *10–14m* **145** *5–9m*

JUKES, Joseph Beete *The student's manual of geology* Edinburgh; Adam & Charles Black; 1857 [CUL]
fo, gd, geo, hl, ir, sp, t, ti, tm

NB p160 to 165
SB □ℜ
p160 to 165 on interruptions to Deposition
177 on length of time of Deposit
254 good remark on Denudation
275 Denudation – some very ancient

antiquity world
317 Littorina bright colours in Tropics dark in north
321 – generic areas inexplicable
387 on breaks in resurgence of fossils & formations
388 foundations not strictly contemporaneous before &c
389 law of succession same at all times 390
391 imperfection of record
393 Higher groups as well as species more limited in time
395 – one fossil in extreme Arctic Regions
399 do x→ ⟨*to 388*⟩
◆ 489 to 503; 565
489 breaks in 3 stages of Purbeck
503 Breaks in succession → ⟨*to 399*⟩
565 on antiquity of world

160 *23–27m* **161** *18–21m* **162** *35–40m (Emmon)* **163** *8–13m, 23–25m* **164** *19–23m, 26–29m, 27–39m, 30–39m, 10–39w* This is strongly supported p167, 168 by small area of most beds **165** *11–14m, 27–32m* **177** *30–35m* **254** *13–24m* **275** *16–24m* **317** *26–38m* **321** *21–25m* **387** *1–4m, 15–20m* **388** *36–45m* **389** *26–30m* **390** *31–35m* **391** *23–26m, 37–40m (Owen)* **393** *10–19m* **395** *31–38m* **399** *4–12m* **489** *29–34m* **503** *1–10m* **565** *8–18m, 21–30m*

JUKES, Joseph Beete *The student's manual of geology* Edinburgh; Adam & Charles Black; 1862 [Down, I]

NB 414; 402
Begin & read at p425
414 *22–29m, 29–31m* **415** *40–44m (Owen)* **416** *14–29m* **444** *fig.w* Crust Plant Pol

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NF ⟨*lists of volumes in Lardner's Cabinet cyclopaedia*⟩

KEIR, James *Sketch of the life of James Keir* London; R.E. Taylor (printed for private circulation); 1859 [Down, I by editor]

KERNER, Anton Joseph *Die Cultur der Alpenpflanzen* Innsbruck; Verlag der Wagner'schen Universität; 1864 [CUL]
gd, sp, oo, v

NB p2, p20 laws of variation
p42 ✍ – On slips & other situations; Alpine plants long hold their places of lower land
p52 ✍ – species which are swamp plants on the plains, not so higher up p139 feeding of Alpine plants Q

vii *4–8m, 19–22m* **viii** *7–15m* **ix** *18–24m* **2** *11–18m, 19–27m* **20** *17–22m* **42** *21–31m/5–30w* On slips &c alpine plants hold their place – occupancy **52** *11–12m, 23–29m/13–32w* are swamp plants on plains & not so on mountains.– **139** *5–10m*

KERNER, Anton Joseph *Flowers and their unbidden guests* trans. W. Ogle, with a prefatory letter by Charles Darwin; London; C. Kegan Paul & Co.; 1878 [CUL, S]
ad, che, phy

NB Use of every Part – 6
p.136 Oxalate of Lime discharged from edges of leaves
p141 ♣ adaptation never a direct one
SB ❑β
* / How can this be reconciled with the facts as they stand in the case of polygonum amphibiani?

6 *11–21m* **7** *20–26m* **129** *21x, wb* pollen flower **136** *1–5m* **141** *19–25m*
℘

KEY, Axel, and RETZIUS, Gustaf *Studien in der Anatomie des Nervensystems und des Bindegewes* 2 vols.; Stockholm; Central-Tryckeriet; 1875–1876 [Down, I by Retzius]

KIDD, William *The canary* London; Groombridge & Sons; n.d. [CUL]
tm, y

KIDD
NB p10
SB ❑β 18 Prize canaries have black wings & tails only till 1st month
10 *20–23m* **12** *14–18m* **13** *31m* **14** *7–9m* **18** *8–15m/11–12Q/16–18Q 19–22m, 23–25Q 25–27m/25u "A | birds"*

DAS KIND: Tagebuch eines Vaters 2nd edn; Leipzig; H. Hartung & Sohn; 1876 [CUL, I]
beh, y

NB 7 knowing; 121 blushing; 147 one year old; 68,9 6 months
7 *2–3m* **89** *10m* **121** *26–27m/27u "Sie | roth"*

KIRBY, William *Monographia apum angliae* 2 vols.; Ipswich; J. Raw; 1802 [CUL, pre-B]
beh, oo, sp, sx, v

vol. 1 NB Q p.47 has been stung by Ichneumon; p200 males & females of Bees; p.4; p.204; p.40 palpi ♣ differing in one genus
40 *13–16m* **47** *3–5m* **200** *21–30m/24u "females"/25u "neuters"* **204** *22–27m*

vol. 2, 387 *15m/w* read **388** *7–8m* **plates** *z*

KIRBY, William and SPENCE, William *An introduction to entomology* 3rd edn, vol. 1 (1818); 2nd edn, vol. 2 (1818); 1st edn, vols 3 & 4 (1826); London; Longman, Hurst, Rees, Orme & Brown [CUL, pre-B]
ad, beh, br, cc, che, fg, he, hl, ig, in, mg, mhp, no, oo, phy, rd, sl, sp, sx, t, ta, tm, ud, v, y

vol. 1 NB1 Reaumur's work ought to be read
Are there any instances serving the parent itself which come into play, after period of propagation, connected with death, making a place to die in – such as cats going into holes, because these cannot be acquired by habits & then transmitted, they must be consequences of some previous habit – wasps killing their young in autumn at first appear so, but then perhaps some of the old murderous wasps survive.– As neuters are sometimes converted into Queens & then breed my argument ♣ against instinct arising from habit, is not perfect.– are neuters of ants ever converted? The instincts of neuters, probably same with those of females of same species anciently
NB2 136; 148; 153; 166; 171; 176; 179; 192, 194, 199, 201, 203♦*, 4, 9; 230; 270; 272; 293 to 98 insect impregn; 322; 332; 336; 357; 361; 371 to 4; 76 to 82; 386; 390; 399; 402; 435; 442; 448; 459; 472; 474; 476; 78; 492; 98; 500; 505

NB3 496 on manner in which Bees form their cells
p293 Capital references about all Plants which catch insects
SB1 ❑β
165 There are in Hives Bees called corsairs idlers Q
179 Seed of Clover Crops almost destroyed by Apions.
192 Cucumbers not injured by insects in England but much in America
203, 230 on artificial substances – p386 – 390; Cases of foreign fruits in England & America injured by insects, so changes in Habit
203 – Nectarine destroyed by insects in America & not Peach – selection wd act on a trifle Ch. 6.
357 Q good relation ichneumon with long ovipositor laying eggs in larvae in fir-cone
371 Q Female ant first takes charge of nest (but I presume is never soldier &c)
274 Q Mother wasps, several in nest take charge of young
380 Q Humble Bees
382 Case of reason in Bees Q
391 Q When insect has fed on one sort of plant will die rather than change Q
435 Q Ant-Lion & Fly making same sort of trap for catching prey.
459, 461 Q Q Remarkable instincts 474
478 NQ Caterpillars social in early stages remarkable fact
492. Musc & wax making Bees – former do secrete little Honey – (ant which secretes sweet juice in Westwood
to 504 Q Bees. Nothing particular for me in Instincts
SB2 ❐ℜ Vol I
p382 ♦✍ Bees supporting comb till pillars built
♦ W. White about snail pulling them at L' ⟨*ie at right-angles*⟩ to extract themselves
♦✍ p391 about changes of food Q✍
♦ p435 Ant-Lion & Fly same sort of trap Cuckoo & Molothus
459–461 Tineae cutting leaves to Pattern
♦✍ Sentence about comb each part depending on what has gone before
380 Workers destroying eggs of Queen Humbles, Spider

136 *25–26m, wb* We can thus see how Oestrus acquired instinct of depositing eggs to be licked up. **148** *9–11m, 10–13m/w* What use is to Coleopters? **153** *20–22m* **165** *3–5m* **166** *29–31m* **171** *26–28m, 29–31m/30u*↔ **176** *26–28m* **179** *6–17m/7u♠/9u "purple"/13u♠/14u*

"Dutch | clover" **192** *27–28m* **194** *4–6m/m* **196** *19–21m* **199** *2–11m/3u "some | Germany"/10–11u "fortunately | us"/6w* Why **201** *12–13m/13u "1787", 21–22u "to | street"* **202** *14–16m/14–15u "are | empire"* **203** *wt* change of instincts *4–5u "which | fruit"/3–8w* curious considering not aboriginal fruits *11–14m/14u "fruit | unripe", 17–22m, 30–32m/w* yet only varieties **204** *22–28m/23u "date | the"* **209** *14–15m* **230** *1–6m, 7–10m* **255** *10–18m* **270** *12–18m, 22–27m* **272** *3–7m* **293** *14–18m (Barton), 22–30m, 31–33m* **294** *18–20m, 25–32m/27u "rich | soil"* **295** *1–7m, 28–30m* **296** *15–27m* **297** *4–23m* **298** *9–10m, 30–33m* **299** *9–12m, 26m, 28–31m/29u "Mordellae"* **321** *22u "perennial knawel", 23u "in | country"* **332** *1–3m, 27m, 29–30m* **333** *3–13m, 32m (Humboldt & Bonpland)* **336** *1–3m* **337** *6–10m* **357** *12–20m* **361** *4–6m, 14–16m* **371** *27–29m* **372** *9–10m* **374** *14–16m* **376** *19–22m, 20–21m* **378** *14m* **379** *7x, 8u "drones | workers", 16x* **380** *1–4m, 8–11m, 9–15m/9–10u "may | bounds", 15–17w* useless instinct *wb*◆ This instinct coming into play, only **382** *6–9m, 12–13m, 19–23m, 22–24m* **386** *16–17m, 18w* V. p.390 **390** *2u "the | purpose", 1–3!, 1–6m (Réaumur), 5–6m, 23m, 25m* **391** *6–9m/"..."/7c∉, 18–19m* **399** *18–19m/w* useless **402** *11–16m* **435** *2–4m/2–11w* very singular not inherited from same parent stock **442** *15–19m* **448** *25–32m* **452** *10–17m/16–17u↔, 27–31m* **453** *10–15m, 21–23m* **454** *30–31m* **455** *15–19m, 21u "flowers", 22–25m/24u "flowers"* **456** *9–11m, 10–16m/10u "A. Pini"* **459** *20–27m/21–22w* V 464 **461** *1–4m* **472** *8–13m* **474** *6–9m* **476** *3–5m, 7–24m* **478** *13–14m/12–17w* This is remarkable contrast with parents instincts **485** *4–6m* **486** *1–2m* **487** *6–8m* **491** *5–6m, 10–11m* **492** *10–11X/11–16m, wb*◆ X The Humbles who make pillars of wax shows adaptation of instinct to circumstances **493** *2–4m/w* gradation Q✍, *wb* It is analogous to difference accompanying age or sex – attached to something unknown – being produced contemporaneously is novelty **494** *15–16X/4–28w* Humbles all secrete a viscid fluid to unite various substances **495** *19m, 22–25m/24u↔* **496** *wt/1–8w* Ants work by hollowing clay & wood out, same principle V. ante *3–9m, 10–17m, 20–22m* **497** *2–8m, 29–31m* **498** *16–22m, 23–24m, 24–27m/24u "but | successive", 25m, 28–30m* **499** *11–16m, 20–24m* 29w Habit *30–32m* **500** *18–23m, 27–32m* **501** *25–32m* **502** *2–4m* **503** *12–14m* **504** *21–23m/22u "thin | purpose", 31u "irregular | placed"* **505** *1–2u "connected | wax", 3u "pale | bodies", 7u "oral | might", 15–16u "flattened | dimensions", 20–21m/20u "the | cells"/21u "female", 26–31m, 28u "goblet-like", 29–31m, 30u "chiefly", 32m* **506** *3–4m, 5–6m* **507** *10u "hexagonal"* **508** *7u "but | convex", 26–29m* **510** *1–3m* **512** *25–26m, 29m*

vol. 2 NB1 I think Kirby considers Bees converting ♣ Neuters into female & Ants taking prisoners, as the most wonderful instincts
NB2 p.119 Bees boring holes, p.523 references on ditto
Linn Trans Vol VI p222 Huber says he has seen large Humble bees try to enter "fêves" & failing bite hole in corolla, whilst smaller Humbles entered the corolla – He has seen them bite the tubes of "l'ancolie" The seed ♣ pods of the fêves were not injured.–
NB3 p395 Beetle Pneum

SB1 Kirby. Vol 2–
12; 22; 30 to 5; 51, 58; 68 to 100; 108 to 119; 125 to 216; 220 to 241; 267; 288; 302; 421; 459; 468 to end of Vol
SB2 ❑β
12 Q Emigrating insects not usually social – makes case odder
31 Bees, Wasps & Ants, one female lays foundation. How in Termites p35 they seem never to work Q (Full account of Societies of Ants & Bees &c
35 Termites contend for the females
74 Q Each ant seemed to know its own fellow of nest – p.80 Slave ants Bees Q
231 Beetle living in Hot-bed & standing Boiling water.
234 Beetles shamming death Q
420 Showers of insects falling
471 Q Definition of instinct – 473 Q good remark on
476 NQ Substitution of one material for another
481 Q Instincts of same species different at two Seasons
492 Q instinct 496 good remarks on not reason – 507 good
511 wonderful Q
514 Reason Q
◆ A fertile worker is throwing Back.–
◆ My metaphor of hereditary piano-forte, ought to have been 1st hereditary spinet, simple & grand piano-forte player. What wd good player do if in concert note stuck. If hereditary playing failed in tune, new tune wd be formed if new tune did imply several notes altered contemporary.
◆ Read all. with idea that originally many queens & no workers – then few queens with workers & lastly one queen.– & that instincts in neuters retain traces of old instinct when made Queens

⟨*over*⟩ There is antagonism between an habitual action & reason – a person knitting meets some accident & reason comes into play – it is no argument that not reason because a person did not intend a perfect repair

SB2 ❐ℜ

Female spiders destroy Male
Vol 2. Kirby
12 Emigrating insects not social congregating like some Birds – & some birds congregate without emigrating –
35 workers of Termites ● Queen.–
♦ 74 Each ant knows its own nest & males Do not go out till Workers Slaves are ready
♦ 77 Slave makers are not allowed to go abroad till others have neuter pupae
♦ 86 The Slave feed the Slave making Neuters – Do the Negros in their own nest feed Males or Queen ??
⟨*over*⟩ 2
p55 workers usually found to come back
♦✍ 119 Hive Bees begging Honey from Humble. Means of new Instinct 207 Corsairs
♦ 148, 155 – Neuters keeping Queens prisoners – (may say endless strong instincts & then allude generally –♣ Ch. 8 & no passage known few other Bees Known.–
161 Confused & mistaken instincts in Hive Bees
♦ 194 Ventilating Hive
♦ 234 shamming Death
♦ X 470 young Bees making comb perfectly
♦ 471 good definition of Instinct
♦ (p.92. Migrations)
♦ 473 Spiders Nets pitt-falls insects beat higher animals
♦ 476 case of sensible adaptation of instinct of insects (Door of intelligence) 487/495/
♦ (481 Marked variation at 2 times of year
♦ 496 argues not reason
♦ 513, 511 Perhaps old instinct retained
(Von Baer about organisation of Bee
♦ 516 Really reason
♦ 519 Ants in hot place not moving Pupae X✎
♦ 525 Communication of Knowledge in Ants
♦ 529 Swarm successive years
⟨*over*; ♦⟩ 3
208–210 Astounding manoeuvre once in life
227 Variation in making Cocoons or home
277 Making exit for moth & thread to guide it
287 jaws given for this purpose to be used once
4 p31 Sedentary Spider turned Hunter
2/495 cells longer on one side of comb opposed to Waterhouse.–
2/187 Knight on artificial Propolis –

12 *16–19m/18u "swallows"* **13** *1–2m* **22** *24–31m, 25–29m* **30** *30–32m* **31** *10–13m, 17m/17–18u "ants|lays"* **32** *17–18m/17u*♠ **33** *17–18m, 21–22m, 28–29m/28–29u*↔ **34** *2m/u "four|female", 6–9m, 29–32m (Huber)* **35** *2–3u "a|get", 3–5m, 6–9m/"...", 10–14m, 20–23m, 29m* **51** *wt* Probably nascent female never practices the work of a soldier ant – not has it same structure? any structure which profits its work in early days wd be selected. Ask F. Smith V. F. Smiths work on Ants *1m, 3–8w* The jaws of soldiers must have been made by selection *4–6m, 26–28m/*Q*/27u "toujours"/28–29u*↔ **53** *1–3m/2u "females|birds"* **55** *wt* xx I can understand a neuter having any instinct which the female could have had, but no others cd have been acquired by habit *3u*↔*/1–4m/2–5w* origin of most instincts in neuters xx *7m, 13–14u "prudent|instinct"/13–18w* Neuters do not breed! How instinct acquired. *19–21m, 19–22m/20u "workers", 24–25u "who|out", 29–30m/u "some|common"/w/wb* So one female may wish to determine others! **58** *2–6m (Huber and Gould)* **68** *16–17m/u "besides|bag"/12–29w* Many insects have reacting glands of anus for bad smells &c & we here see, used either as sting, or poured into wound. *27–30m* **69** *5–7m* **70** *7–13m* **74** *19–23m* **75** *5–6w* Slaves *10–12m* **76** *21–24w* Latreille confirms *27–31m (F. Smith)* **77** *7–10m, 14m, 15m/u*↔*, 24–25m, 30–31m/u "link|Myrmica"* **78** *15–16m/15u "composed|neuters"* **79** *21–22m* **80** *28–29x/28–32w* only fighting neuters *34–38m/w*♦ they have no neuters then? or many soldiers?? *35–38m (Latreille), wb* like Cuckoos with their eggs in other birds Nests **81** *1u*♠*, 7m/u "others|purpose", 29u*♠ **83** *6m* **85** *1–2w* x Smith sold Myrmica *3xx, 13–14u "Active|field"/13–17w* so these are neuters *17–18u "So|they", 21u "will|suffer"/xx/X*✎*/w* impossible to explain *29x*✎ **86** *22–26m* **87** *7–8x*✎*, 16u "the|helpless"/w* gradation *18m, 29m, 30–32m* **88** *5m, 9–12m, 15–16u "It|character"/12–16w* for the Negroes dread the Robbers *27–28m* **89** *25m/26u*✎ *"alternately", 30m/u "that|cows"* **90** *3–5m, 10m* **91** *3m, 5–9m, 10x*✎*/u "with|pays", 20–21m, 21x*✎ **92** *9–11m, 12–14m* **93** *18m*♦ **100** *18–21m* **108** *15m, 16–20m, 27m* **109** *23m, 31m* **110** *1–2m, 9u "male", 9u "than|female", 18–19m, 26–27m, 29–30m* **114** *16u "the|females"/14–16w* Ask F. Smith *20m/u "in|resemble", 23m, 29–31m* **115** *24–30m* **116** *9–11m/9u "honey|pollen"/10u "males|females"/11u "pure honey", 12m, 20m* **117** *2m "between|workers", 5–7m, 8–10m, 11–12m* **118** *10–11m, 13–15m, 24–25m* **119** *1–5m, 6–7m, 8–27m/11–27w* How new instincts cd arise *30m,* *32m* **125** *4u "Two females", 10–11u↔, 11–14m, 12u "are|occurrence", 35u "shorter"/w* Queen **126** *1–2m/u↔, 3u "straighter maxillae", 4u "not|theirs", 12–13m/*Q*/u↔* **127** *1m* **128** *1m, 2–3m, 4m, 5–8m* **129** *31–32m* **131** *10–12m/10–11u↔, 14m "differently|mandibles", 17–18*Q *20m, 21u "curve|sting", 22u "wax-pockets"* **132** *25m* **136** *13–21m* **137** *24–28m* **139** *12m, 14u "those|four", 17m* **140** *14–23m, 21–24w* acquired to injurious self *24–26m/w*♦ false instinct injurious **142** *12–13*Q *15m* **145** *6a "the"* worker *22–23u "for|fortiori"* **147** *12m* **148** *9–15u±, 20u "of|her", wb* it is difficult to believe the workers could have acquired these instincts when they were gender before their neutrality was gained. **151** *15m, 16–24w* Maternal aversion !! how accustomed we are to maternal affection= *26–30m/30w* p.148 **152** *7–11m/9w* p.148 **153** *13–14m* **155** *6–10m/7–27w* X 148 in state of females, they could never have learnt so to respect & value a female; this implies there being few females & hence the neuters having their femality cd not acquire it. *11m/12–17m/13–19w* XX this might arise from mere social affection originally *20u "pregnant state", 26–27m/27u "enable", 29–31m/30u "twenty|day", 32m* **156** *3–5m/3u "sometimes", 8u "at|to"* **157** *24–25m* **158** *1–4m* **161** *wt* What are males fed on *1m/u "laying|worker", 2u "male cells", 5–6m, 6–7u "male|ones", 7–9m, 8–11"..."/10–11u "male|jelly"/11m, 12m, 13–14m* **162** *26–31m* **166** *3–4m/w* X p.148 **168** *3–5m, 8–10m* **169** *12m/u "Here|defective", 15m* **171** *12m* **172** *16m, 23u "male|royal"* **173** *4–5m, 13–16m/14–15u "result|drone"* **177** *3m/u "both|young"* **179** *22m* **180** *5–7m, 17–19m* **182** *8–11m (Aristotle)* **183** *24–28m* **184** *30–31m* **187** *10–12m, 32u "Philos.|1807"* **191** *20–30m/28–29u/21–27w* shows not individual Knowledge **192** *4–5m/w* like Humbles X **194** *6–7m* **195** *5u "workers", 10–11m, 14u "in files", 18u "twenty", 24u "retinas"* **198** *6–8m* **207** *17–19m* **208** *8–10m* **215** *26–31m* **216** *7–9m* **220** *5–8m, 21–23m* **223** *18–24m* **231** *3–5m, 16–17m, 20u "hot dung"/20–21m/w* not by nature *24–25!/25u "native station"* **233** *6u "orange|thorax", 8–9m, 12–14m* **234** *15–17m/16u "by|death", 19u "which|dead"* **235** *8–9m, 18m, 19u "simulation|death", 22m, 23–24"..."* **241** *5–9m* **267** *10–32m* **288** *26–29m* **302** *4–9m/4u "pupa"* **303** *6–10m* **358** *25–28m* **384** *1–10m* **385** *14–18m* **387** *15–19m* **391** *1–8m, 3u*♠*, 20–21u↔, 24u "base|elytra", 27u "would|their"* **395** *1–4m, 18–20m* **396** *19–25m* **399** *3–6m* **401** *5–10m, 16–22m* **407** *3–13m* **411** *8–10m/9u "though|light"* **412** *27–28m* **413** *1u "is winged", 20–21m* **415** *18–22m* **420** *8–18m* **421** *wt* A, How gradually acquired? *7–12m/7w* A **424** *20–28m* **459** *16–20m* **468** *11–16m (Lamarck), 20–21m/?, 28m/u "ii.325"/?* **470** *8–11m, 13–22m* **471** *13u "faculties", 14–16u "independent|view", 16a "without"/w* necessarily or even generally *17–19m, 20–21u "which|ignorance"* **472** *9–14m, 30–33m (Germar)* **473** *12–19m, 14m/23m/u "All"/14–16w* Migrations Hatching eggs Bears Houses○ *25–32m/28u "regular cities" "nets|artfully", 32u "sheep|labour" "pit-fall"* **474** *8u, 27u "never attempts", 27?* **475** *21u "variation|accommodation", 22u "among|numerous", 29–32m/29u "cow|horse", 31–32u* **476** *1m, 5–9m/5u "bark"/6u "pieces|paper", 29–31m/x/31u "span|web", wb* X These seem to show that they do know end in view or rather what they work for **477** *7–8m* **479** *2–6m, 12–24m, 29–30u "requiring|only"* **480** *25–31m/31u "Bonnet"* **481** *1–16m/w* See to this it wd appear as if the latter brood had acquired this instinct *32u "Oeuvres, ix.370"* **483** *1–4m, 27–30m/28u "lids|ordinary"* **484** *5–11m, 13–17m* **485** *30–32m* **486** *19u "glass"* **487** *3–6m, 10–12m/11w* good *26–30m* **488** *9–12m/10u "propolis|mixture"* **492** *15–16m, wb* compare them to bricklayer born with consummate art – & provided with actual instruments **493** *18–20m/19u "would|less", 20–27m* **495** *11–32m/20u "the former"/21u "the|latter"/14–15w* Knitting *wb* The difficulty is just as great if we look at instinct as innate power **496** *26u "Variations|instincts", 28–30m, wb* It comes to this because reason goes so far & no further, it is not reason. An Australian cd not do Principia.– *29u "always"/wb* How do we know this **497** *3–4m, 22–23m, 23–27w* Knight on use of grafting○ Mixture *28–31m* **498** *5–10m, 27–30m* **499** *19u "manifold", 20–21m* **500** *1u "not mean", 2–4m, 18–20m/20u "another", 26–27m, 29m, 31m* **501** *6–8m, 27–30m* **502** *4–7m* **503** *2–4m, 8–10m* **504** *5–10m/8u "A third", 11–14m* **505** *2–5m* **506** *22–29m* **507** *1–3m, 5–7m, 8m, 16–18m, 18–20m* **508** *6–8m, 16m, 17–18m, 30–31m* **510** *5–7m, 6–25m, 23–28m* **511** *4–11m, 25–30m/25–26w* old instinct retained **512** *30–31u "fed|maturity", wb* is this given ordinarily to all queen larvae **513** *7–12m, 23–26m/w* (a) *wb* (a) One may suppose that originally many queens were ordinarily thus reared & a few workers & the instinct is thus retained **514** *22–25m* **515** *21–28m* **516** *8–13m, 17–20m, 25–29m* **517** *23–30m* **519** *10–13m, 15–20m, 21–22*Q *24–28m/24–32w* like Robin which built on Steam Engine **520** *1–3m, 19–26m* **521** *4–7m* **522** *5–9m, 12–15m* **523** *16–19m* **524** *5u "all", 11u*♠*/w* not indigenous **525** *4–7m, 19–30m* **527** *14–17m* **529** *3–27m* **530** *5–11m*

vol. 3 NB 89; 95 & 96; 101; 162; 202; 210; 221; 227; 257; 261; 276; 287; 305; 330; 338; 466; 474; 593; 594; 605; 632; 645; 654

SB ❑β
Marshall 284
89 Number of eggs various insects
96 adaptation of eggs like seeds of ♣ plants
208–210 Q Astounding manoeuvre performed once in life.
227 Q very important variation in Habit – Perhaps Instinct rather
261 var. in ♣ colouring of crysalises
277 NQ larvae preparing exit for imago & even providing guide to find trap-door.–
287 Q jaws given for this sole purpose (under selection Ch. 6) to be used only once!
474. Good sentence about no new organs being produced without transition Q
594, 605 Rudimentary organs for symmetry
632 In Hymenoptera the progress of neuration of wings can be traced
645 Scales, as on Butterfly appear in some Diptera
665 Number of legs vary in Iuli &c.–

89 *1–7m/w* Proof that numbers here depend on means of prosecution *8–24m/10u♠/11–20w* We only know by experience that every species can increase if not checked *12u "30,000", 14–15u "40,000 | more", 16u "200,000", 22u "211,449,600"* **95** *22–25m* **96** *1–3m, 14–22m/14–17w* adaptation as in seeds **101** *8–14m* **162** *5–11m* **202** *9–14m/10–11w* adaptation **208** *10–31m* **210** *1–29m/10–14w* wonderful **211** *19–25m/20u "now"/21u "silken"/22u "horizontal", 29–31m* **212** *1–2m, 3–7m, 12–21m, 13–31m* **213** *2–9m, 17–28m* **221** *19–25m* **227** *1–5m* **256** *15u "pupae", 21–25m* **257** *8–10m, 17–22m* **261** *9–12m* **276** *28–32m/28u "previously | pupa"* **277** *1–10m, 28–30m* **278** *1–4m* **287** *1–10m/4–6u↔* **299** *27–28m* **300** *1–4m/3–5w¢, 6–9m* **301** *26–29m/28u♠/29u "female | rubra"* **302** *1u "red", 4u "elytre", 23u "testaceous | black"/w* Lepidopt *24–26m/26u♠/w* male *28u♠, wb* Aperture Iris emperor *23u♠/wb* = Polommatus aegon **303** *1u♠, 2u "orange | upper", 3u♦* **305** *21–25m, 28–31m* **306** *7–8m/7u "tibia | bearded"* **309** *14–19m* **313** *4–7m, 11–17m, 21–26m, 27m* **314** *28–30m/*Q **315** *16–17m/17u "female | male"* **323** *1–5m* **327** *3–7m* **329** *17–26m/19u "pectoral"/21u "weevil"* **330** *19–21m, 23–25m, 26–27m* **331** *30–31m* **332** *1–18m* **333** *16u "incrassated | male", 23u "the | erroneously"/w* incrassated not always sexual **336** *6–9m* **337** *18–27m/*Q **338** *1–4m/*Q **340** *2u "Pneumonia"* **342** *26–30m* **344** *5u "of | Coleoptera", 11–12m* **345** *15–18m* **346** *26–29m* **466** *20–22m* **474** *wt* If all Mammalia which have ever existed were preserved, probably as many traces of abortive organs wd be found as in insects in nearly all of which they are present. *2–10m, 19–25m/*Q*/21u "but | organs"* **593** *1m/u "represented | the", 18–19m* **594** *22–29m, 25–26m* **595** *1–3m* **605** *17–18m, 18–23m/21u "appearance | elytre"* **632** *14–26m* **645** *29–31m* **654** *13–18m* **655** *⟨erroneously 665⟩, 5–11m*

vol. 4 SB1 Vol IV
p.31; p.357; 358; 373; 397; 405, 6, 8, 411 to 15 wretched trash; 478; 484; 486 to 508
SB2 ❑β
31 Crippled Spider from Sedentary became Hunter See. J. Banks. Ch. 8 Q
373 on use of larva in classification
478 On number of individuals in different orders, without relation to number of species
488 Calasoma poor in species & individuals, very wide ranging genus.
500 Battles of Lethrus (a vegetable feeder)
156 stings & ovipositors described.–

31 *4–7m, 8–10m* **156** *8–9m/?* **258** *wt* Calcaria **259** *10m, 12m* **261** *3m, 16m, 19m, 27m* **263** *27m* **264** *11m, 27m* **267** *5m, 27m* **268** *17m, 19m, 20m* **270** *12m* **271** *18–21m* **272** *19m, 28m* **273** *12m, 18m* **274** *21m, 28m, 31m* **277** *20m* **278** *3m, 27m* **279** *1m, 8m, 16m* **280** *1m, 3m, 7m, 13m, 21m, 24m* **281** *27m* **282** *1m, 4m, 7m, 15m* **288** *21m* **293** *6m* **294** *17w* Margin *20–21m, 23m, 25m* **295** *3m, 17m, 25m* **297** *30m/u "Spurious suture"* **302** *18–22m, 27–29m* **303** *5–6m, 9–11m, 17–20m* **320** *27m* **321** *14m, 17m* **322** *18m* **325** *7m* **327** *19–20m* **334** *10m, 15m* **357** *7–11m* **358** *7–13m, 15–17m, 30–33m (Linnaeus)* **359** *5–6u, 19–20m, 26–29m* **373** *22–27m* **397** *4–13m/6–7u "especially | distinct", 14–19m/15–16u↔/18–19u↔* **405** *1–2m, 16–21m, 16–19m, 20–25m, 30m* **406** *26–30m* **408** *1–17m, 19–20m, 29–30m* **409** *4–7m* **411** *18–21m* **413** *16–19m* **415** *21–27m* **421** *zb* **478** *9–15m/8–12w* Think over this **484** *18–21m* **486** *11–16m/13–14u↔* **487** *8–10m, 20–22m, 29–32m (Latreille)* **488** *20–21m, 23–28m, 27–28m, wb* This is opposed to my notion of formation of genera. Think over this Extension in this case must depend on adaptation to some peculiar food & not to any general superiority over congeners.– **489** *1–11m, 17–18m, 23–32m, wb* My notions require that number of individuals & species & genera shd in some degree accord which is doubtful.– NB Comparison can be instituted only when there is struggle. Diptera & Coleoptera cannot be compared **490** *1–6m, 22–25m* **492** *3–7m* **494** *1–2m, 9–11m (MacLeay), 12–16m*

496 *22–27m* **497** *1–5m, 21–22m, 25–28m* **498** *4–7m* **500** *3–6m/4–5u*↔ **508** *19–25m* **512** *25–27m*

KIRCHHOF, F. *Das Ganze der Landwirtschaft* Leipzig & Torgau; 1835 [CUL]
beh, br, f, fg, he, mn, sp, sx, sy, tm, v, wd, y

NB A very poor book with wretched classification.–
◆ 1 to 56; 79; 88,90 Geese – large in Pomerania small in Poland; 104 Duck lays 30–36 eggs; 111–114
April 1857 Nothing except above Ducks good to quote in Ch. 4
6 Polish swine broad stripe down back related to young wild swine being striped

3 *11–12w* swine with undivided hoofs *26u "6 | Junge"/w* wild swine **4** *wb* Breeds differ in size short feet bowed back power of fattening **5** *12–17w* great difference in size of wild swine *19w* Races *24u "10 | Junge", 26u "seine | Glieder"/26–27w* fine hair on joints *32u "kurz | Körper", 33u "Ohren", 32–35w* short round bodies, long ears, woolly bristles **6** *1–3w* broad stripe along the back *31u "ist | 9", 32u*↔*, 35u "vielen | sein"/w* must be provided with many teats **8** *19–20m*✍*, 21–25w* Do wild breed twice a year? **53** *1–2m/w* The leg on which roost generally stronger than other! **54** *25m, 32w* pointed head *34u "kleinen Federbusche", 37u/wbτ* **55** *1w* crested *7–10w* cannot find way when crest wet with rain *10u "brabantische"/w* Gold spangled *13u "silberfarbige Hahn", 16u "zart | Eier"/w* punctured eggs *17u "Der | Hahn", 18u "rothe | Schnabels"/w* 2 red warts on side of beak *26w* Tail-less *33–36w* Frill-like Fowls collar almost like Jacobin!? **56** *1–8m/w* can hardly fly *5–7w* Bantams *11u/wτ, 10u "Hamburgische"/10–23w* Cock & Hen have legs clothed like velvet – cock sharp beak: yellow circle & band of yellow feathers round eyes with tuft of black ornamenting ears *22–24m, 24–25w* Frizzled Fowl *26u "Kamm | schwarz", 33u "einen | Farbe", 35–36?/u "hat | Kehllippchen"* **57** *wt* Hen spurs like Cocks *6m/w* Dorking **79** *wb* this tuft cd have been mistaken for monstrosity **88** *26–31m/w* Geese in Pomerania very large. small in Poland **90** *15–20m* **104** *24–26m/24u "sie | legt"* **105** *14–17m* **111** *28–29m/29u "aber | bringt", 30u/wτ, 33u "fast | bringt", 35u/wτ* **112** *wt* I shd think this man knows very little or nothing of subject) *2u "Schnabel | dick", 3u "Schneppe", 3w* Trumpeter *5u "oft | zeit", 11u "ihr | fehlt", 22–25m/w* Pouters some vars males & females different males being spotted. I wonder whether true? *wb* vast number of coloured vars. of Pouters **113** *2w* Carrier *3–4m/u "Da | entfernen"* **114** *1–2!/1u "einen | Schwann", 29–32m/w* Carmelite

KLEIN, Edward Emmanuel *The anatomy of the lymphatic system* part 1; London; Elder & Co.; 1873 [Down, I]
part 2; London; 1875 [Down, I]

KLEIN, Edward Emmanuel, BURDON-SANDERSON, John Scott, FOSTER, Michael and LAUDER-BRUNTON, Thomas *Handbook for the physiological laboratory* 2 vols.; London; J. & A. Churchill; 1873 [Down, I, FD]

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beh, cc, cs, dic, f, fg, gd, he, hy, ig, in, mhp, mn, no, oo, pat, phy, sp, spo, sx, sy, t, ta, v, wd, y

NB1 ◆ Read Muller in Berlin Trans
NB2 ✍ Oct/55/Everything – this Volume fully abstracted & abstracts distributed.–
NB3 ◆
What good experiments might be made by mixing pollen together of several kinds.–
p.12 Male & Female organs in Hybrid unequally affected.
According to Gaertner (p.273.) when several varieties of the same species are crossed with another species, offspring closely alike; but when several close, but true species, are crossed with another species offspring very unlike. This must be tested in this work, specially in 3 races of Nicotiana.– In the Nova Acta he experimented on plenty of vars of Mirabilis ♣ Jaleppa. but I fear that vars differed only in colour. But Dic Classique remarks that Mirabilis Jalep differs only in colour of flowers

KÖLREUTER, GESCHLECHT DER PFLANZEN

Part 1, 9 *22u "4863"/w* pollen ♣ in flower *25u "dreyssig"/27–28u "fünfzig | sechzig"/25–30w* 30 seeds from 50 or 60 pollen grains **10** *21–26m/w* less than 10 pollen grains did not fructify **11** *1–5m/w* in cold weather more pollen is required *9–14w* in very late & cold season no quantity of pollen suffices **12** *wt* when all but ♣ one stigma cut off, yet all capsules with seeds *1–4m* **15** *5c¢, 11u "noch | geschlossener", 13u "Gräser", 1–22w* Know nothing dichogamous plants.– *29u♠/31u♠/26–31m/w/wb* Grasses & these are all flowers, which are impregnated, without aid, by contact, & even in the yet unopened flowers!! **17** *wt* pollen of some Mono & dioic plants fully & others spored on all sides.– *13–15m, 25–31m, wb* plants with stigma right under anthers. **18** *19–23m/w* In rue stamens move over stigma **19** *7–14w* stamens move to stigma quicker or slower according to weather. *20–23w* stamens move when anther removed. **21** *26u♠, 26–30w* Malvaceae impregnate only by insects *28u "allein"/28–31m/wb* I was astonished good sentence to translate **22** *1u/wτ, 1–9m, 5–9m* **29** *28–31m, wb* ♣ juice, sought by Bees secreted from stigma of Iris **36** *4–13w* Scrophularia & Antirrhinum lay their anthers on the stigma but are also aided by insects **43** *6w* V p.10 next Chapt– fertile= when this season experiment succeeded. *8–10m/8–15w* inverse experiment produced infertile seeds but rather larger *10–22m, 17–30w/wb* those wh. appear in an unpregnated capsule *20–24m/w* in many plants **44** *wb* seems to think, pollen of foreign & own can together act & produce a tinge of Bastardism this seems possible as 20 grains of pollen are in some cases requisite for any fructification, but not proven.– **47** *18–24m, wb* What Crown Imperial not much frequented by ♣ Humble – secretes honey from opening to withering of flower

Part 2, 10 *23a "Nachricht"* p.43 *26–29m* **11** *wt* produced another year 24 ♣ capsules p.23 *4w* 8 petals *9–13m/w* absolutely undistinguished from reverse experiment **12** *4–7m/w* infertile on male side but fertile on female **13** *27–29m, 29–30u "einige | weniger"* **14** *10–11m/9–12w* in some parts more than in others rather like to Rust. *16–17m/w* some plants more good seeds than others *18–22m, 24–28m/w* plants from same capsule differed in fertility **15** *1–3m/w* differed from all parents **17** *20–21m, 23–26m/25u "Fruchtbarkeit", 27u "unterschieden"* **18** *1–6m/w* most of them are more infertile than the hybrid parent *7–9m/w* as if tendency to miscarry was given *11–13m/u↔, 16–21m, 15–19w* some seeds, however, produced plants. *13x/wb* X All these results are confirmed by (p.20 other, different experiments → & by an analogous experiment p87) (& by same p.91→) of next Part; but one of them quite sterile **19** *12–14m/w* varied *19–23m* **20** *11–12m/w* did not take at all after perenne **22** *1–4m/w* fertility much increased *14–21m/w* concludes probably that hybrids with some pollen change into maternal form. *23–25w* p.55 of 3d Part one plant came much nearer to Rust. *26c¢, 29a "einen"/wb* genugen **23** *20u "Missgeburten"/19–23w* = Miscarry? or monster? *22–23w* another instance p54 of 3d Part in another cross **24** *wt* In Hybrids from Rust & Panic, male or reverse the hybrids have no good pollen but female principle yet acts on both A. *12u "gänzlich", 11–13m/w* ganzlich means very & tolerably *wb* A. How unintelligible is this, as this hybrid fructified itself p.21 prop. pulv. consperso **25** *wt*◆ X odd this not taking at all after perenne *4u↔/x, 5–12m, 8–22m, 9w* two pollens *21u↔* **26** *10u↔, 12–16m/w* 3 pollens mingled together & not hybrids **29** *5–8m/1–8w* exactly intermed *9–11m, 26–32m/w* hybrid more flowers plants higher & taller *1–23w* X this shows that hybrids are well suited in soil &c &c **30** *11–13m/7–13w* absolutely sterile **31** *wt/1–2w* or seven-hill tobacco *3m/w* var of Mag. ♣ vulg. *17–24m/5–24w* Difference from last hybrid ♣ correspond to differs. of 2 varieties **32** *wt* A gave smaller capsules & fewer seeds, than when this hybrid was impreg. with pure N. Rust. or Pan *5m/15–18w* var of N. Maj vulg. *21–24m/22w* A *3–5m/→* **33** *16–19w* & this is a second cross *9–10m/9–15w* These two hybrids differed greatly. **36** *14c/17c "male"* female/*9–25w* exactly intermediate between male & female **38** *6–24m/23u↔/2–24w* Pollen quite worthless Capsule began to swell, with other pollen.– *25–31w/wb* I suspect, pollen fails in hybrids, easier than female principle **39** *5–25w* These & other hybrids tend to throw up strong stems in autumn **41** *19u "Mit | Worte"/19–22w* finally very like male parent **42** *4m/1–6w* (quote this) as different as Cat & Lion **43** *22–24w* V. same experm p119 next Part: *25c "carthus."/x/w* barbatus *wb* Sweet-William **44** *wt* Yes Does Gaertner mention this? *3–6w* seed affected *5–7m, 8–30→, 27–29m/w* A *30–31m, wb* I shd think female principle more defective than male.– ?? V. p. 117. **45** *wt* I see in Loudon this is Hibiscum vesicarius = African Irionum = Bladder Kelmia ✍ these are all right → *3w*✍

Cavanilles & Decandolle make this 2 species, but they are evidently very close both from Africa. *4w* Kippist thought it very doubtful whether real species *5w* reverse *5w* Mongrels *5–10m/10u "Hibiscus", 10u "blosse Varietäten"/8–10w* Probably 2d Edition of Linnaeus *14–15u "beyden | Seiten", 19–21m/17–21w* Like each other in reverse exp differed from each other *24–27w* Repeated with same results p.128 next Fort *28w* Cheiranthus p51 ⇑*1u "Levcojen", wb* stock-gilliflower ⇑*1u "Lack"/wb* Wallflower (Dictionary) **46** *7–9m/5–11w* difference in period of flowering in the reverse experiment *16u "einfach", 16u "gefüllt"/12–16w* The mongrels were single, the pure-bred were double? *17xx, 23u "anders | ganz"/17–25w* X cannot make out in Loudon what species they are *wb* XX p.128 second Fort raised intermediate & quite fertile hybrids; hence considers only varieties **47** *8–9m/5–11w* quite sterile p.124 3d Fort quite fertile **50** *1–16w* refers to individual plants *7–29m* **54** *1–13w* reiterates greater infertility of male side **55** *10–27m* **58** *23–24m/24u↔/21–30w* Generally speaks of ♣ mongrel having possibly lost some fertility, sometimes. **60** *wt/1–14w* cannot account for varying degree of infertility in foregoing hybrids; even in one case increased infertility though plant became more like mother. *12–14m, 15–16w* fruitful on female, but sterile on male side **61** *1–31m/1–18w*♦ only some exception to characters of hybrids being intermediate & chiefly in X *12–20m/20u "als | Bastarden"* **63** *2–4m/4u "Vater | der"* **64** *wt* Experiments which did not bring offspring, interesting as showing gradation in effect *19–20m/w* reverse failed **65** *7–8m/w* reverse failed *13–14m/u "Die | Grösse", 16–18m/w* seed appeared good *23–24u "Die | natürlichen"* **66** *12–13m, 12u "Beym umgekehrten", 26–27m, wb* capsule fell of when half ripe **67** *6–7m/u "einige | sitzen"/6–10w* Do some remained on ♣ *13–22w* gave offspring p58 Fort 2 next year → *25–30m/w* seeds did not appear quite perfect **68** *wb* see p.45 to see what species **69** *wt/*↕*w* Impregnation ☞✎ Hibiscus impregnated by pencil & by insects, during many days was done almost as well by the insects, though they lost some days during rain *11–12m/11u "310", 13–15m/13u "10886"/14u "11237"/15u "351", 24–28m* **71** *wt/1–25w* Pollen of misteltoe expelled into flower before open, & several flies are attracted by the sweet juice on both male & female flower & &c impregnate it *20X, 22u "Stacheln", 23u "unter | zusammenhängt", 28–30m, 29u "Gattungen Fliegen", wb* X pollen covered with points & sticks together **72** *8–11m/w* not by wind *17–25m/w* remarks that depending on insects & Birds

Fort. 2 Part 3, 8 *6u "Häufig"/5–9w* Canaries & Linnet hybrids of fertile. *11u "absteigenden | erstreckt"/x, wb* X This near crossed again by Canary bird twice over.– **9** *5w* S. Europe *11–14m/13u "Sulz | Neckar"/w* experiment tryed at Sulz Neckar *17–20w* Britain & Italy/L **10** *wt* p.1–46 in 3d Fortsetz all about Verbascum. *2w* England *5w* England *10–26w* Mem. Mr Herberts letter to me *20–24m/22–23u "grossen | Blume", 25u "ringste | Befruchtung", wb* Found on many flowers on the 3 plants on two successive summers, that the female of phoenicena, cd not be impregnated by its own pollen, showed no sign of fructification, but yielded seed to 4 other species growing in same country!! **11** *wt* There were 3 plants of this phoeniceum. *9–10w* same on another plant *13–14m/w* cannot explain. *wb* The female or phoeniceums were garden seedlings & p.41 3d Fort not grow here wild **16** *19–30w* exactly intermediate **17** *1–25w* every point exactly intermediate **18** *5z* **21** *7–9m/7–18w* colours rather different in different plants & petals of same, not similarly coloured. **23** *16–21w* intermediate **24** *12–13z* **27** *25–28m/w* flowers varied a little in colour **30** *12–19w* intermediate **35** *20–27w* intermediate **39** *11–19w* anthers held little *24–31w* power of growth vigorous, for they flowered sooner than natural *30–31m/wb* quite infertile even with pollen of parents **40** *1–6w* but a half fructified for germen swelled *11u↔/12–15m/11–18w* colours of the autumnal flowers became darker & more like female **41** *1–18w* intermediate (even in such points as smell which the parent & the other has not at all.– **44** *wt* only one plant raised *3–6m/w* quite sterile *8–28w* I observe most of the plants in this Fortsetzung either raised on Hotbeds or planted in boxes in open air, & transplanted into pots **45** *1m, 13–15m/13–19w* fertility in same degree as in former V appendix **46** *12w* pot **50** *1–4w*♦ nearly intermediate *14–18m/12–17w* later flowers became darker *22–23w*♦ not quite intermediate *wb* N.B in former experiments, where no mark characters are intermediate **52** *1–11w* not intermediate, but does not say after which parent. **53** *21u♠/20–22w* differs in leaves, stem flowers shape of *wb* p.19 N. perenne seems distinct in shape of leaves & small sharp capsule of fruit, & shape of flowers **54** *7–8u♠, 17–29m/19–20w* plenty of differences

26–28w Habits different Leaves move in evening to stem. *wb* Certainly these vars. most distinct & only the last said to have been found wild in Tobago **55** *1–25w* crossed 5 as he believes, varieties of tobacco & found offspring intermediate & quite fertile *24–27m/26–30w* were intermediate in every respect between parents. **56** *1–15w*♦ Hyb fruct. more successful Offspring quite unfertile (I think) more fertile than ⟨*Nicot. mai.*⟩ or vice versâ I ♣ believe but cannot make out which V. p.60 (this Fort:) *11–12m/w* varieties of same as shown p55 *14–15m/w*♦ a very little fertile *18u "Hauptsache", 23–25m/20–26w* differed only as much as the 2 vars differed *28u "geringen Grad", wb* X thinks some little of own pollen may have got mixed!? ♣ ? (No according to Gaertner) **57** *19–24m/x* **58** *16–21m/w* These failed the year before *16–21w* Reverse experiment of last offspring as like to them as egg to egg **60** *wt* (a) This is very important (though only belief) well grounded/: has shown that N. perenne, N. major var fl. alb.○ N ● are all varieties by perfect fertility (& not mentioned as species by Loudon), or yet N. perenne seem rather more fertile with N. glutinosa, than other vars. & is 1) Major fl. alb.○ 2) Major vulg 3) Transylvan. *8–11u "so|Varietäten"/m/w* (a) *13–28m/w* XX shows that little of own pollen prevents quantity of foreign pollen having any effect. **61** *1–11m, 11–27m* **62** *16–23m/10–23w* very little being used, hybrid was produced **73** *1–29w* In all respects A more approaches male, except in particular p.77 further on *12–17w* A on p78 on sterility male quite sterile, female side more fertile than ♣ **74** *2m* **77** *1–14w* this refers to the parent A except in some respects differed from all parents, as in dwarf growth & shape of leaves **78** *wt* All this refers to parent hybrids marked by an A *wt/1–16m/w* Essential difference, ♣ (though male side quite sterile), female more fertile (when impregnated with pure pollen) producing 100 seeds, instead of as in parent hybrid only 20–30 seeds *2–13m/10u*↔ **79** *1–25w* These hybrids (in the 3 generation) all (many) closely resembled each other & the Pan. & were nearly with few exceptions quite as fertile as it. **80** *14m/wt/1–14w* The infertile few, partly sterile probably both on male & female sides. **81** *2–31w* Proved their fertility by all kinds of crosses & so found they very nearly equate in fertility to Pan: **82** *3m* **84** *27w/wb* two of the three quite unfertile **86** *1–29w* some fertile, some unfertile, though some of the latter came nearest to Rust., in which respect apparently some variability **89** *14–23w* The hairiness & smallness of leaves not common in this degree of descent X in hybrids *29–31m/w* Results of these confirmed **90** *10–13m/w* plants differed ♣ 2 from other & in fertility 4 of other sex raised *10–12m/10–11u "einige|weniger", 27–28m, wb* pretty good pollen & left to self produced very good seeds. **97** *12–14m/12–24w* differs a good deal one from another especially in colour & substance of leaves *wb* seedlings described at p59 next Fort. **98** *28–31x/wb* fresh proof of variation in second descent, when crossed with either parent.– **99** *7–8w* barbatus? see p.112 *23–27m* **100** *1–18w* in all respects analogous to last experiment. *26–31w* all pretty fertile except one plant *wb* The fact of one species by crossing with another assuming such infinitely various new characters is an argument in favour of possible variation **101** *2–4m/w* some variation in different plants. *10–11w* reverse of Exprmt p.96. *13c "carthus."* barbatus *14–28w* does not bear so many seeds as pure Chinensis, but more than some experiments hence the hybrid male has more confined fertility as a female, than as male. *wb* N.B I think this requires more testing **102** *7–11m/9w* variation **103** *14–19m/14–19u±* **104** *9u/w* one of the plants *16–18m/10–21u±* **105** *5–11w* on the whole fertility increased with some exceptions **106** *1–6w* p.166 3d Fort another experiment described *5m/w* barbat *12–15m/w* partially fertile, like hybrid-parent in character *8–19w* In my Abstract (p18) of experiments: I see there is D. Carthus & barbatus.– *20m/w* Italian = barbatus **107** *19–21m/19–20w* very like Hortensis *23–26w* in Hortensis pure, pollen often not matured *28–31w* less fertile than hybrid mother **108** *17m/w* Be sure to see to Reverse p.66 next Fort. *19–20m/w* of very difficult impregnation *17–20w* experiments with different varieties of both ♣, *24–29u±, wb* B Does this case occur elsewhere of difficult impregnation, & yet hybrids so raised, being fertile rather? Has reverse been tryed? **109** *3–6w* p65 next Fort prop. pulv consperso *15–18u±/w* Hybrids *23m, wb*♦ B These four differ, as they are separately described. but they appear to have come from different varieties of Hortensis **110** *1–17w* in some points after one parent in some after another, in some intermediate Mostly after male. *30–31w/wb* Male parent or Hortensis, double. **111** *3–11w* flowers double so that monstrosity can be transmitted to other species. *30–31m/w/wb* important, because takes most after ♣ the male an artificial variety; Not because the female is also a variety. **112** *11m/w* a variety of *12m/3–12w* a wild plant on poor rocky ground. **115** *20–23m/w* pollen partly good **116** *wb* appears upon the whole to have taken most after the wild male. certainly not intermediate as so generally happens. **117** *22–28w* female side, was fertile with pollen of other species wd not self fructify *wb* This seems to show the want of intermediary due to cultivation. **118** *wt* Vide former Fortsetz p.43 **119** *2–5m/w* some little variation in the hybrids **120** *wt* 4fold or 20 *1u "meisten"/2–4w* most not all **121** *14–19w* empty. smell bad pollen in some of growing wild – *17c/u "plumar"/wb* p.69 ought to be D. superbus ↑ → **122** *7u "vervielfältigen Kupfernelke"/w* & M *11u♠/11–14w* & in others Botanic garden *19–20u↔, 25–29w* & in other wild plant *28u♠, 28w* & in *wb* compares this to blight of Oats & suspect it due to weather. so be cautious **124** *18–19w* see 3d. Fortsetz p114 *28–29m/wb* offspring did not flower owing to cold summer **125** *10m/wt* See Gaertner p273 on Distinctness *11m/w* England Smith says(?) Loudon says aboriginally S. America *12m/10w* N. America *11–14m/18u↔/11–21w* all like each other & quite fertile & so varieties contrary to Linnaeus *wb* I see Gaertner gives the reciprocal experiments only i.(a) **126** *7–1m/w* quite agreed with each other *8–9w* Read vars. *23–26m* **128** *7w* Stocks

Fortsetzung 3, 1 *wt* Experiments carried on ♣ from p.1 of last Fortsetzung *12x, wb* Crossed many Verbasca of that country, & found them fertile, to his surprise, as he thought that plants of same country did not readily yield hybrids. 2 *5w* No *6w* S. Europe *7w* Brit *14–15u "Scherben", 21u♠/4–9w* Never seen ♣ Thapsus & Phlom. growing in same spot though in same country *23w* & Thaps. **4** *19–24w* intermediate **5** *16–17w* quite infertile *20–21w* Reverse p.12 2d Fort: *20w* Britain *21w* S. Europe *23–24w* exactly like **6** *14w* England *15w* Britain x *wb* x p35 when crossed with flav. var. colour of hybrid-flower rather darker.– **7** *9m* **9** *11–20w* intermediate *26w* sterile **10** *2–4w* some Mountain flowers *17m/w* Britain *17–26w* exactly similar to last. reverse of last– **11** *3–4m/w* Britain **15** *13–24w* sterile: those in pots, produced larger empty capsules (a) perhaps from pollen of neighbouring plants.– p.20 same fact *24–26m/w* Reverse of last *wb* (a) N.B. In almost every experiment plants saved in hot-bed, & transplanted into open ground & pots; so Wiegmann wrong. **16** *1–11w* like last, or reverse, except in leaves, being shorter & with little wing-like projections, as in female *14w* Britain *15w* S. Europe *24–26m/24–25u↔/26u "strohgelbe", 27–28m/w* except in some colour. **17** *3–4m/w* Britain **19** *14–25w* intermediate **20** *wt/1–4w* This shows a negative potential power, & ignores my argument from cucubulus. Thus several cases where one species has not an organ, (as in this case one species hair & the other has not hairs with knobs) the hybrid has it in less degree.– *4–8w* p.24 an analogous fact in stalks of leaves *24–25m/w/wb* those in pots near other plants half fructified, but no seeds – (same fact p26 onwards) **21** *3–4m/w* Reverse of last quite like. **23** *17–19m/u "bey | davon"* **24** *14w* see opposite page *15–25w* intermediate *16–19m/w* V. ante a X *19u/wτ* **25** *9–12m/w* a X do *25–27m/w* a X do *29–31m/w* sterile **26** *8–9m/w* Reverse of last *21u "wesentlicher"/22u "nur schienen"/w* no great differn *27–28u "sondern | muss"* **28** *15–22w* intermediate **29** *18–22m/19w* sterile **31** *14–26m/w* intermediate **32** *18–21m/15–21w* intermediate **33** *22–25m◆, wb◆* It is evident, from the great similarity between these hybrids & the foregoing ones, that Phlonrides & Tha **34** *3–4m/w* infertile *7–8m/w* reverse of last *20–22m/14–26w* quite like last, except in colouring of some of the flowers N.B. One parent is a var *27u "vier", 28–30m/w* intermediate in colour – p307 Positively contradicted by Gaertner *wb* quite fertile 35 *wt* Even Babington allows that there are two such. vars. *1u/wtτ, 5–7w* wild Natural variety (a) *8wτ, 10u "beträchtlichen Anzahl", 12u "nicht Art", 15–16m/w* case of var. *wb* (a) It is biennial – grows wild close together, yet during 4 years found they came true; in some districts, only white vars.– Why do they not cross naturally? very strange. Like Hollyock case. **36** *12–14m/1–14w* corollas of many of these hybrids fell off the unopened flowers. *17u "fünf | Gattungen", 16–18w* only native species **37** *20–22w* self formed hybrid **39** *wt* insects visit all Mulleins, but no hybrids, because own pollen strongest effect *1x/2u "zur | beytragen"/w* especially assist *27–30m, wb* says he has shown by certain experiments that species will take only own pollen, if two blends put on together.– **41** *wt* V. phoenicum, which grows in Lower Saxony & Silesia near Kalw, is sterile on the male side with itself (as said at p.20, 2d Fortz) *4–8m/x, 9–10u "von | selbst"/w◆* & yet it seems it had pollen. *11–15m/10–21w* 2 always fertile in one plant *15–22m/15–18u±/19–20u±/ 21–22u±, 23–25u±* **42** *1–4w* self-formed Hybrids.

6x/7u/wτ **44** *wt* all hybrids of Verbasc. sterile (yet easily male C.D.) *2–6m, 13–17w* sort of half fructification *21x, wb* wd appear as if quicker growth, longer flowering &c was property of ♣ all hybrids.– especially of those that properly flower the second year or die **45** *wt* hard to explain strong vegetation before flowering: the permanence of flowers explicable by their sterility *2–4x, 4–7m/x* **46** *18–22w* 1. 2. 3. V. p.53 *24u "sieben"/w* z *25u "noch höhern"/25–27w* yet higher fertility *wb* z These do not seem to sport. **47** *2–6w* 1. 2. 3. 4 *8u "zehen"/w* z *13–15m/w* some few bad pollen-grains in autumn *23w* no offspring **48** *1–9m/w* did not differ from hybrids between Pan & Rust *23–29w* sterile. 2 of the plants differed from a third *wb* NB in bringing back a hybrid to either parent, does not appear favourable to sporting **49** *14w* 1 *16w*♦ 2 *17w* Spring from self sown seed *wb* This & following appear extra fertile; is there any difference between first cross of Pan & Rust, & reverse? **50** *2–7w* some with more seeds and some with less **51** *9–15w* 1–1/2; 2–1/4; 3–1/8; 4–1/16; 5 *16–17m, 25–26u "durch | Merkmal"* **52** *13–19m/x/wb* probably some plants may be changed in more or fewer generations – x probably this facility is in proportion to the fertility of the hybrids. **53** *10–16m/xx/19–20u "aus | Kräften", wb* xx important; the gran-children, of themselves, without crossing come nearer to Pan (as if crossed again with Pan. as in XX) **54** *4–8m/w* now more resembled each other *14–16m/w* not very fertile **56** *5–7m/u "denen | Unterschied", 15–20m/w* these hybrids came into flower sooner than either parent *28–30m, wb* Hybrid pinks often arise naturally in gardens & cross much **57** *20–21m/w* (a) *23–25m, 28–30u "da | erstreckt"/w* Pinks!! *wb* (a) This unnatural case of pollen not being mature in time often happens with native pinks when planted in gardens **58** *16x/12–16w* p.99 2d Fort same as Dia. carthus. **59** *wt* (a) These hybrids self sown. become ♣ partly more sterilized or partly more fertile in seeding themselves, but offspring sterile & tend of themselves to return to ♣ side of Barbatus *5–8m/w* (a) *25u "Forts. | unter", 28–30m, wb* become very like mother-plant & assumed fertility by self action **60** *7–11w* supported by reverse **61** *2–4w* less fertility **62** *17–19m/x, wb* – hardly differed from Hort. & was double, so that these varieties produced full effect on a compound hybrid.– **63** *19–23m/w* differed & double on double calyx **64** *8–14w* intermediate *17–22w* vary in colour **66** *1u "Ansehen | Samen", 14m, 21–28m/23u "vielen"/24u "einige"/25u "einen | etliche"/21–27w* very few capsels with very few good seeds **67** *7u "einfach"/9u "gefüllte"/8–11w* varied much 2 double *18–19m/22–24m/19–26w* resembled one in reverse experiment & greatly resembled the reverse cases *wb*♦ Does the homogeniousness of reverse experiments hold in varieties, as well as species? **68** *18–21w* varied in colour all single *26–30m/x/wb* xx took much after Hortensis: thinks in 3 or 4 generation wd be undistinguishable– **69** *13–15m/xx* **70** *2–3u↔/1–16w* D. chinensis two varieties can be impregnated with D. superbus (a native) as ♣ surely & fully as with own pollen. **72** *1–17m/↕w* wonderful how intermediate in every point, even the colour (wh varies) these hybrids are; yet we kn. one a wild species, other cultivated varieties. *wb* (a) Pollen of these Hybrids partly good partly bad, yet impregnation of parents sure as in pure D. Chinen **73** *2w* (a) *3–5u↔, 10–11u↔/9–21w* inherited doubleness strongly more or less inherited Yet wild male & inclined to be hose in hose – colour darkens in Autumn *25u "in | sich", wb* Could never self impregnate them; but produced when begottened by other species & by seeds **74** *wt/1–12w* duration of flowers & power of vegetation shows their hybrid origin, as in other instances. *25–27m/wb* Doubleness hereditary from female as well as male side **75** *29u "durchgehends", wb* On male side quite sterile, on female with other pollen produced some seeds. **76** *15w* p108 *16–23w* intermediate **77** *13–18w* self infertile but fertile with pollen of superbus **78** *7–12w* intermediate *16–23w* self-infertile but fertile with Hortensis **79** *1–4w* Both these & reverse of difficult impregnation. Reverse of last *5–15w* intermediate & like last *19w* variety *20w* wild growing *wb* barbatus is Sweet William **81** *12–18w* intermediate **82** *1–7w* quite sterile *9w* variety *10w* wild plant **83** *5–26w* I cannot tell whether intermediate in colour seems to take after chinensis – sterile **84** *16–24m/4–28w* Varied greatly in colour – doubleness strongly heredetary **85** *wt* Though species & simple varieties, take intermediate colour, when crossed, yet those which have been much cultivated, sport greatly *1–23w* has carefully self-impregnated some much altered Varieties & finds offspring sport much *5–29w* So that this analogy has not escaped him– *13–17m, 15–16u "nicht | Sorten", 19–26m/x/wb* & thinks long-continued changes of conditions tends to destroy the balance ♣ preserved in ordinary generation, in form colour &c &

everything as in hybrids of the first ascending or descending degree **86** *17m, 18m/w* double *19m/w* wild species *27u "zehn", 28w* 10 hybrids **87** *1–31w* X|| strictly intermediate, even in colour, but also the flowers double, so showing strength of double hereditariness!! **88** *25–26m/25u "kein | einfachen"/26–27u "vervielfältigten | gefüllen"/ 23–26w* Not one simple **89** *1–4w* quite sterile on female side. **92** *wt/1–10w* intermediate – in some few points apparently less like male or chinensis Q *15–16m/*Q *17–20m/w* considerable fertility on both male & female side *21–22u "wenn | Saamenstaube", 24–25u "zwanzig | ziemlich", 31u "nach | von"* **93** *1–10w* about 1/3 of natural seed & next to [63] the most fertile hybrid he has raised *13m/w* Loudon makes distinct *13–16w* thinks a var: of D. deltoides a wild species *24–26m/24–30w* form of petals a little different in D. glaucus from D. deltoides **94** *wt* (a) sowed seeds of wild D. glaucus & sometime a red flowered plant came up like D deltoides * Both British & considered by Loudon as distinct *5*Q *8m/w* (a) **96** *1–3w* intermediate *6–7w* quite sterile *16–26w* supported strong vegetation = theory of all hybrids whether quite sterile or partly fertile **97** *wt/1–5w* B. This experiment produced much good seed; which surprised him, as this hybrid impregnated with D. Hortensis gave none. NB is perhaps explained by great fertility of D. plum sib with D. chinensis (p.43) So that a third species is more fertile with the hybrid, than one of the parents *6–8m/w* B *9–12w* ought to be repeated to be trusted. **98** *12–16w* intermediate **99** *5–8w* offspring differed considerably in every respect from same capsules **100** *12–17m/w* sterile except in one, some good seeds. **101** *12–13w* Another example *13a "der"/w* 1st *14u "S.32"* **102** *2–18w* The two hybrid plants differed in colour & in some other respects *wb* confirms remark, that hybrids in second generation with other hybrids not so constant, as in the first cross **103** *6–8w* fertility of some increased *15–16m/15–26w* wild species yet does not seem to induce its form in this cross with any particular force. **104** *25–28m/w* fertile with self by self **105** *11m, 19–26m, 26u "zwergartige"/w* dwarf *wb* 3 plants differed in colour ♣ two approached nearer to D. barbatus & one to D. chinensis.– **106** *1–19w* similar hybrids from 2 reverse experiments sported & two leaned to D. barbatus *24–31w* seems no rule in the variation of such hybrids **107** *1–3m/w* tendency to be dwarf **109** *wt* seems to ♣ say, that, as in a hybrid, the male or female side is most fertile, so will its offspring take after that side. *7–12m* **112** ⇑*2–1m/wb* 2 differed ♣ 3 hybrid generation **113** *24–31m/12–29w* repetition of old experiments **114** *17u♠/18u♠/1–24w* intermediate & quite sterile♦ fertile: & hence varieties Loudon makes out diff. shrubs & plants China & E. Indies *25–26m, wb* Hooker looked to these Hibisci for me; those now thus named are very distinct & really very distinct in appearance & male even into 2 genera: case cannot be trusted **116** *wt* A) Hooker found for me, that Mat. incan & annua are thought vars. by R. Brown & Bentham says M. glabia is also only a var. So case fails *4–6m/1–6w* thinks infertility shows these distinct species *18–20m/w* Make a list with reference to X Hunt out these vars *18w* = Mathiola in Loudon A. *23u "Winter | zu", 24–29w/wb* Gaertner has not tried this, Note given in K. to reciprocal cases of M. annua & glabia p.7061○ *27w* so that 3 reported species are distinct *wb* x Resembled each other in inverse Incana is Purple stock. annua ten-week stock. **117** *19–20m/w* as fertile as two parents *26–29m, wb* Must be considered as varieties, though flowering at different times duration of flower & other differences. **118** *wt* Impossible to make anything out in Steudel Mem. species not in Loudon *1–2w* Sida Not experimented on by Gartner *10–15m/7–10w* fertile hence varieties intermediate *19–21w* cannot be traced in Sageret *22–26w*♦ Compare with Sageret. **119** *wt* Hooker allows these two Aquilegias probably distinct *5–6w* intermediate & fertile *8w* varieties *17m/15w* Columbine *22w* double *24u "einfach"/w* single *wb* I see Gaertner p365 experimented much on Aquilegia & nearly all (i.g.) (but no Ks.) with many species: ♦ Now Hooker thinks all one species; has he published? **120** *14–15u "stark verveilfältigen"/w* V very double **122** *1–15w* Greatly varied ♣ in colour & doubleness. *18–27w* as in inverse & varied as in do **123** *wt* Attributes the great variation to the cultivated state of the garden Columbine: supports statements at p.85. *10–11m/x/u "und | Fruchtbarkeit"/w* not small ♣ fertility x *9–14m*✎, *wb/17–31w* Some might think these hybrids p49 might be self-propagated for perpetuity; he does not believe, as seeds somewhat less, or doubleness only right number in parents. also from the tendency in many cases to return to either parent form **124** *22w* Hyosciamus *23w* p46 **125** *8m* **127** *19–27m/10–31w* I have not well made out following pages. *wb* In Syngenious plants, the pistils head down & touch pollen ♣ C. Sprengel I shd think did not know this **130** *22–24m* **131** *9m* **134** *1–6m/1–15w* wonders at the movement, as he thinks impregnation ♣ happens by insects alone **136** *27–31m/w* On Pollen **152** *1–18w* pollen in water, when swelled, does not burst in many genera

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NB 55
55 *4w*●

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NB O/
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ad, dv, phy, tm, ts

SB ✒
147 The older pari- & impari-digitata have collar bones much more alike than they have now – gradual divergence
147 thinks changes very stow ⟨*ie slow*⟩
153 thinks reduction of 4-toed to 2 or 1 toed wd be grt saving, for reduced blood-vessels &c
183 much about adaptive & unadaptive changes.
✏ What I do not understand

137 *25m* **145** *13m* **147** *wt* The older forms of the paridigitata & imparidigitata have collar bones much more alike than at present day – gradual divergence.– *2–16m, 35–41m* **148** *8–9m* **149** *23–26m/25u* *"Choeropotamus"* **151** *27m* **153** *11–21m, 37–40m* **154** *6m* **161** *35m*

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title page *wt* Febr
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KUNTZE, Otto. *Methodik der Speciesbeschreibung und Rubus* Leipzig; Arthur Felix; 1879 [Botany School, I] ℘

KUNTZE, Otto *Um die Erde* Leipzig; Paul Frohberg; 1881 [Down, I] ℘

KURR, Johann Gottlob von *Untersuchungen über die Bedeutung der Nektarien in den Blumen* Stuttgart; Henneschen Buchhandlung; 1833 [CUL]
ad, beh, che, fg, gd, mhp, mn, no, oo

NB *w*✎◊
SA ⟨*pp. 28–29*⟩ ❑β
Jan. 19 1861 Abstract of whole Book
He asserts that Cruciferae are unfrequented before flower opens (Kurr)
⟨*over*⟩ ✒
Jan. 13th/61/Nectar an excretion – as seen in Legum. & Laurel – see also Kurr for other cases.– In Bracteen & flowers later produce only when sun shines – sugar is highly oxidised, & is not oxygen exhaled when sun shines.– Nectar is sought eagerly by various insects – C.C. Sprengel, finds case that it is excretion in various parts & organs within flowers & its very general presence in highly organised plants (see Kurr) was of special use to plant by attracting insects.– He erred in supposing that these visits were for self-fertilisation; though in many cases necessary for self-fertilisation (a) & for various of the Dioicous plants. The real object as shown by many general considerations is to ensure occasional cross.– But true as it in those flowers, as Papaver &
⟨*over*⟩ & Verbascum (Kurr) no nectar, yet these genera naturally cross – I suspect pollen-searchers do the job – But there are some as grasses, conifers, on pollen of which insects do not seem to feed – here wind both unites dioicous & crosses the hermaphrodites – Often have feathered pistil without pollen in adundance – dangling anthers – open petal flower &c &c.– & no nectar (except Poa aquatica probably) Think of number of Insects which feed chief on Nectar!

(a) A hermaphr plant not self fertilising itself & thus requiring insect agency is in fact for same object of crossing
SB2 ❑β ✎
Nectary p.129 p133 V tricolor Delphium
⟨*over*⟩ ✍ Abstract of Kurr on Nectary Jan 14 1861 1
p.17 Cyperaceae & Gramineae Junceae no nectar Arum none (false) – p34 Rumex, Atriplex none Rheum has 36 Plantago none
25 Calyx of certain Iris secrete Nectar
29. Lip of Butterfly orchis secretes before flower opens ||✎ throws light on secretions in Listera &c
28* Bracteen of certain orchids secretes honey
29 Cypripedium no nectar!
–✎ 79 Polygala vulgaris none; yet I have seen Hive-Bees smelling shows how rarely secretion happens So Viola same facts
39 Small flower with nectar Veronicas (44 Myosotis) 54 Galium 2 spe. & Asperula/64 Epilobium hirsutum & Montanum) 79 Stellaria & Sagina procumbens/83 Draba verna/
40 Verbascum none (yet cross naturally) – Solanum tuberosum & parent none
42 Syringa vulgaris none? whether in own country?
80 The fruitful flowers of Viola have no corolla or nectary – (probably self-fertilisers)
85 In Cruciferae generally fertilisation in compound flowers.– & Honey after fertilisation = some error =
86 Papaveraceae (they have the guiding mark of C.C. Sprengel) no nectar
95. Amentaceae ♣ (except Salix known to be visited by Bees.) no nectar. Or Coniferae Good as showing use of nectar in several cases as Graminae Cyperaceae. & Coniferae when we see structure & pollen strong that wind is agent No nectar
⟨*over*⟩ 99. List of plants without nectar
102 Nectar rarely secreted before pollen shed but last afterwards
115 cases of nectar secreted outside of flower (does not know of many cases)
124 cases of Orchids which get no seed when spurs cut off.– but opposite cases given in note
126. Viola tricolor bore seed when spur cut off probably bees do not see & are guided by flower – so with Corydalis later
129 general conclusion from 441 experiments barely lessened seed.–
131. some orchids bore fruit when corolla cut off
133 V. tricolor bore fruit 135 General conclusion that cutting off corolla did not prevent flower producing fruit!
138 to 142 General conclusion of whole Book on use of Nectaries – All spoilt by not knowing of use of Crosses.

12 *wb*✐ Kru◗tz○ **17** *3m/w* Arum must have Honey *11w* none ⇑*15–10w* none Poa aquatica must have – one Moth frequents **19** *4w* none *22 15m/u "beiden untern"* **25** ⇑*14–12m* **28** *5–10m/w* No Honey look at night– ⇑*7–4m/*⇑*6u "Bracteen"* **29** *2–5m/w* lip of Butterfly orchis before flower opens *18m* **32** *7–15m/x/w* Proteaceae with nect on one side **34** *"Rumex".x, "Chenopodeae".x* **36** *"Plantago".x, "Primula".x* **38** *1–10w* Bees wd not go where the nectar accumulates.– ie in Nectar pollen ⇑*9–8m* **39** *5–15w* Veronicas, though so small secrete Honey **40** *"Verbascum".m/w* X Yet cross so readily! Naturally moveable○ by pollen-searchers *"Solanum".m/w* none **42** *"Syringa".m/w* none **44** *"Myosotis".m/w* small flower **45** ⇑*8u*↔ **49** *"Apocynum".m* **50** ⇑*18–14m/*⇑*17–16u "welche | Saftmal"/w* receptacle **51** *"Pyrola".m* **52** *1–2m/wt* shows secretion of pollen relates to opening of flower *3–8m* **54** *"Galium".m/u,* ⇑*3–1m* **57** *1–4m/4u "untere | Hälfte", 16u "der | umgibt", 19u "ihn | umfasst"* **64** *"Epilobium".m* **65** *"Potentilla".m* **66** *"25"m* **67** *5–6m/6u "Saftabsonderung | dem"* **71** *"Melianthus".m/w* latent **74** ⇑*4–1m* **75** *1–2m/1u "ist einseitig"* **79** *"Cerastium" "Spergula".m/u, "11"m, "12"m, "13"m,* ⇑*11–9m,* ⇑*10u "keine Honig"/w* Bees frequent **80** ⇑*10–1m/*⇑*2u "einigemal | wurzelständigen"* **83** *"9"m* **85** *"Cheiranthus".m/!/u±* **86** *"Papaver".m/w* Yet cross naturally **88** *"Anemone".m/u* **95** *"1"–"4".m, "7"m,* ⇑*4–1m* **96** *3–5m* **97** ✍ *"27"m,"44"m* **99** *wt* Poppies have mark at base of petals to guide Bees *6–7w* Eliz has plants*/u*♠, ↕*w* Anemone remarkable exception cover up Anemone **100** *3–5m* **101** ⇑*14–8m/w* good for looking to Pistil **102** *9u "höchst selten", 22u "gleich häufig",* ↕*w* Nectar very rarely secreted before pollen shed but sometimes lasts after fertilisation. Present in dioicous plants **103** ⇑*18u/wτ,* ⇑*16u/wτ,* ⇑*14–10m/w* Nectaries become regular in double flowers **104** *12–16m/15u "Orchis | maculata"/17u "sehr | absondern"/w* Nectar receptacles present where no honey!!? These, I suspect, are cases of secretion at odd times. *21–24m/w* doubts whether they serve as guides to insects. **115** ⇑*6u*✍ *"heisser",* ⇑*12–6m/*↕*w* Secretion of sugar by other parts of Plants **119** *7–10m, 14–17m, 20–22m* **120** *1–12m,* ⇑*12?/u "Viehwaiden",* ⇑*10u/wτ* **121** *2–6m (Sprengel)/w*

KURR

(a) *wt* (a) First who saw use of nectar to temt insects **124** *5–7m/w* O. conopsea bore no fruit *8u "15", 9u "nur | an"/8–9m,* ⇑*6–1m/w* contrary result **126** *wt* Nectarys cut off *11–12m/u "alle | reife"/w* It is clear Bees do not perceive when nectary cut off.– **127** *8–9m* **128** *"27"m, "30"m* **129** *14a "Versuchen"* with nectary cut off ↕*w* before the whole cutting off nectary hardly lessened Seed. **130** *wt*✎ Orchids Cutting off flower ⇑*11u*✎ *"keine | trug",* ⇑*7u "Blumen | Kelch"* **131** *wt* corolla cut off *4u "sind gereift", 8–9u "aber | Frucht", 18u "eine Frucht", 21u*✎ *"Hälfte"* **133** *5–6m, 11m*✏ *"Blumen | Früchte", "Viola".m/m*✎*/w* (a) *wb* (a) Could he have artificially fertilised these flowers? **134** *"69"m*✎*/!/u "sie | Saamen"* **135** *"76"m*✎*, "77"m*✎*/u "Fruchtbildung", "II"m* **138** *7–10m/wt* says as he cut off corolla &c & yet plant bore seeds yet cannot argue that these parts useless so he says with Nectarys ⇑*4–1m, wb* argues against Sprengel, because in most honey-secreters no help is wanted (does not think about crossing) he has proved in many cases no help wanted. Because many are fertilised in bud, as Campanula!! **139** *2–6m/w* no help wanted *7–9m, 10–12m/w* Nectar fails in many dioicous plants. *16–17w* B *19u "so | habe",* ⇑*17–1m/*⇑*10–8y±, wb* B Believes insects necessary for some dioicous plants, but cannot believe so important an office left to chance! **140** *1–4m* **141** *5–9m* **142** ⇑*8–2m, wb* Secretion of nectar, he concludes, relieves flowers, like menstruation, before seeds are got.–

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NB 242
vol. 1, 239 *12–14m* **242** *9–17m*

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NB O/

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gd, sy, tm

vol. 1 NF Have

⟨*untranscribed w are page-number references;* ➾⟩
vol. 2, 17 *2w, 13w, 17w, 24w, 25w* **18** *1w, 2w, 3w, 6w, 8w* Order Polypes Tubiferes 405 415 **22** *8w, 14w* **71** *zt* **90** *8–12m, 9–23c/15w* (a) *wb*✏ (a) Flustra is stony & entirely membranous **91** *17w, 18w, 19w, 20w, 21w, 22w, 23w, 24w, 25w* **105** *11w, 12w, 17w, 22w* **123** *15–17m* **449** *6w, 7w* **457** *2w, 19w* **458** *7w, 15w* **504** *9–10m* **527** *2w, 9w* **528** *1w* **530** *14–18m*

vol. 4 NF ➾
Hymenoptera 38; Neuroptera 179; Orthopteras 229; Coleoptera 266; Dom. 272; Frim. 275; Tetrar. 283; Heterom. 366; Pentam. 437; fil. 439; clav. 532; Lamell. 564 **42** *25w* **43** *3w, 12w, 18w, 24w, 28w, 32w* **123** *10w, 14w, 18w, 22w, 25w* **185** *19w* **227** *31–32m* **234** *8w*✏ **240** *wb* caught a specimen 370 miles✏ from coast of Africa where it must have come from **248** *15–18m* **272** *10w, 11w, 12w, 13w, 16w* **284** *14w, 21w, 25w* **285** *2w, 4w, 6w* **358** *23–26m* **367** *20w, 27w, 30w* **368** *2w* **397** *5w* **399** *1w*✏ **439** *1w, 4w, 7w* **440** *14w, 18w, 20w, 24w, 27w, 29w* **492** *27w, 28w* **493** *3w, 13w, 14w, 15w, 16w, 20w, 22w, 25w, 30w, 31w* **494** *3w, 4w, 6w, 8w, 9w, 13w, 14w, 19w, 20w, 21w, 25w, 28w, 31w, 32w, 33w* **532** ⇑*1w* **533** *2w, 6w, 9w* **566** *8w, 9w, 11w, 14w, 18w, 19w, 23w, 30w, 31w, 32w* **567** *2w, 5w, 9w, 10w, 11w, 13w, 19w, 22w, 23w, 24w, 26w*

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ad, af, is, mhp, t, ud

vol. 1 NB1 It is doubtful whether Lamarck has done more good by awakening subject, or harm by writing so much with so few facts.–
This volume no facts, wild metaphysical speculations – very poor
vol. 7 – Land-Snails on Islds
Nothing else in whole work March 1857
NB2 March 1857 Nothing
111; 112; 114 to 116; 126; 132; 134; 151; 152; 153 to 165; 197; 249
287 On analogies

111 *27–28m/28u*↔ **112** *10–11m, 12–14m* **113** *28–33m, wb* Owen gives Rept (Rept Brit Assos) as strongest case of wide range of perfection **114** *30–35m* **115** *19–23m* **116** *29–31!/30u "perfectionnement"* **126** *34–36m* **132** *2–18m, 23–25m* **134** *12–14m, 18–20m, 28–33m, wb* Milne Edwards **135** *22–25m/!!* **151** *20–24m* **152** *1–12m/w* evidently has no notion *9–14m* **155** *18–23m, 19–20w*♦ **156** *1–16m, 4–7w* only proofs **157** *1m/u "loi | observation"/!!/wt* Because use improves an organ, wishing for it, or its use, produces it!!! oh – **158** *5–6m, 24–25m, 26–27m, 30–31m* **159** *3m, 4u "habitudes | prises", 5–12m/w* this is nonsense applied to Plants, What makes them acquire a habit *13–18m/15–16w* Base of theory *20–23m/21w* oh **163** *14–16m* **165** *7–19m/11u "peu | plus", 31–36m/*→ **166** *33–35m* **197** *32–36m* **249** *1–5m* **287** *1–3m, 4–11m/9w* **288** *17–18m* **288** *7–12m, 16m*

vol. 5, 646 *33–36m, wb* V. Thompson Zoolog. Researches No 3 p69 **651** *22–28m* **652** *18–21m/18u/w¢*

LAMARCK, Jean Baptiste de *Philosophie zoologique* 1st edn.; Paris; Duminil-Lesueur; 1809 [vol. 1 only; CUL, pre-B, cover is that of 1830 edn.]
ad, beh, cc, ch, che, cr, cs, dg, ds, dv, ex, fg, fo, gd, geo, h, he, hl, hy, is, mhp, mi, no, oo, phy, sh, sl, sp, sy, t, ti, tm, ts, v

NB p261 On effects of intermarriage in preventing multiplication of species
SB ❒ℜ
44 It is odd that in animals organs for conservation of life important, in plants organs of reproduction – But a flower is more than organ.
58 good remark how arbitrary the distinction race & species is.
62 alludes to conditions. [In Preface ask whether from earliest ♣ age there can have been revolution of climate corresponding to the many changes in organisms on earths face.]
Very poor & useless Book

21 *19–25m* **22** *14–18m, 19–21m* **25** *23–27m* **26** *8–12m/9w* Why? *10–21m, 21–22m/u "ou | existé", wb* Fallacy common to Swainson & Macleay **31** *wt* X Here seems to think existing series perfect *12–14m, 21–26m/x* **32** *18–21m* **33** *26–28m, 27–28m, wb* V. p31 **38** *wb* In this Chapter argues that all divisions or gaps are artificial or that the series is either now perfect or has been so – Fallacy – **39** *9–12m/11u "parenté"* **44** *10–13m/w* why so strong a division? **50** *24–28m/?* **51** *1–12m* **52** *wb* On the importance of relations **55** *11–25m* **56** *14–25m* **57** *22–25m, wb* Lower animals where many species **58** *1–9m, 18–28m* **59** *16–17m/16u "forment | rameuse", 18–24m* **62** *21–28m/?, wb* Is there any marked difference between races produced in same or different countries, with respect to propagation? **63** *1–5m*♦*/?* **64** *22–26m/23–24m, wb* ♣ a want of Proof **68** *wt/1–12w* The case of acquired hereditary instincts, shows that instincts can be acquired. *3–4m, 10a "tout"/→/8u "sublime Auteur", 21u "nature"* **70** *21–27m, 24–28m, wb* & not isolated pair **71** *1–4m/??, 13–15m/14–15m/w* Well-said *18–21m, 20–28m, wb* Like Lyell in Geology **75** *1–7m, 10–14m, 13–27m, wb* not well stated **76** *1–25m, 10–23m/14w* Poor *13u "à détruire"/→/wb* S. Africa **78** *1–26w* The similarity of type on old Continents & in oldest seas – does it point to first Creation?? *wb* Lamarck argues, species of shells, not killed by man, no apparent cause of death; but causes of change are present ∴ therefore fossil same species with modern.– **79** *13–15m, 24–29m/w* ∴ rate of change not uniform in world, except on great scale *wb* Geologists judge of time by change of species, these changes effect of physical changes (dynamical changes). these we can only judge of by present day – Therefore measure of past ages is reduced to observation of changes at present day .– **80** *wb* Therefore every fossil species direct father of existing analogies & no extinction except through man!– [Hence cause of innumerable errors in Lamarck] **81** *wb* On species – argues against permanence, when conditions changing – series branching now or once perfect – no genera – conditions change species & these changes by time become fixed – assumes some more species made by (p.64) by hybridity & fixed by time – wants produce habitudes, the source of actions, faculties & instincts – argues against Egypt case & asks what is 2000 to 3000 years? –/definition of species 75 /doubts any extinct animals! (hence theory must be false XX *wb* There is nothing about types as Geograph. Grouping **83** *9–15m/10–11u "n'offrant|parfait"/?, wb* nearly all compound animals being fixed, analogy with vegetables,– caused probably by ♣ imperfect transmission of will preventing voluntary & coinstantaneous movements. **84** *1–4m/?* **86** *1–4m* **89** *16–22m/?* **93** *1–5m* **101** *wb* Speculations **105** *11–14m, 21–25m* **106** *17–27m* **107** *15–27m/17u "que|le"* **108** *13–22m* **109** *9–16m* **110** *24–28m* **127** *15–23m* **129** *wb* – Classification – p.105. few animals at the limits of classes – animals in series & not ramified p.109 (quite different from my view) – organs vary in developement & not in same ratio, as the developement of the class to which it belongs **134** *27m* **135** *1–3m* **136** *1–6m* **140** *1–27w* There appears to me to be some confusion in these ideas of degradation. What makes perfection, except that towards the end wanted. Look at House○ of Crustacea *wb* Scale (of many kinds) of complication = on exists. **144** *1–3m* **145** *6–14m, 13–27w* Here is the difference between Lamarck & Me **146** *5–8m/?* **147** *1–2m* **148** *3–8m, wb* The economy✍ of world would have gone on without Bats or Ostriches.– It can only be following out some great principle It is clear Birds made preeminent for air. yet if no birds: Mammalia would best take place **149** *wb ⟨continuation of p. 148⟩* There limit to this Adaptation. Fish could hardly have lived out of water. Though Crabs – Spiders under water.– **150** *wt/1–5m/?/w* This is rather false; Simply to differ from highest animal, does not prove degradation. Who can doubt superiority of some organs & therefore senses in lower animals *15–28m/w* How curiously different from Swainson *16u "palmipèdes"/w* Why? *18u "sortant|marcher"* **151** *6–10m/w* as bad as Swainson **155** *13–15m/w* no links with high classes **156** *15–16m, 16–28m, wb*♦ according to his class of argument. This not degradation because mere effect of in **157** *5–10m, wb* NB Snakes perform the parts of fish, & fish of snakes.– 158 *7u "odorant"/→/wb* On this scheme of organization lower down it would not be expected to find organs♦ smell more perfect. But in others as articulates it is much more perfect **217** *wb*✍ This chapter must be looked over again: L. distinguishes between degraded or abortive organs, such as extremities of Cetacea, & less developed forms –: discussion on this point fills much of this Chapt. *wb*✏ The want of progression in the vegetable world serious fact Lamarck has rather overlooked – Though no doubt vegetable world should rather be considered as one family (not so large as insects) in the scheme of organic beings. **221** *23–27m* **223** *14–21m/w* Therefore not same theory to plants & animals **229** *24–28m/28u "formées|pays"/?* **235** *16–18m/17–22w* are there any facts? I doubt **241** *3–8m, 13–16w*✍ Australia honey-sucking marsupial. **242** *1–6m/w* Mem. Tucotucu *wb* Coleoptera wings beneath soldered cases **244** *8–13m/9?* **246** *5–13m* **261** *22–28m* **262** *1–7m* **266** *7–14m, 10–28m, wb* Does not pursue this into Geographical Distribution **267** *7–16m, 18–27m* **268** *wb* Explains how animals & plants change. Lamarck's✍ theory differs for plants & animals – It is absurd this way, he assumes the want of habit causes animals annihilation of organ and vice versâ – ||Explains how crossing presents innumerable varieties of man – & supposes if no distance between men, there would not be many races of man – does not extend this view **376** *1–3m/1–13w* This shows connection of life with laws of Attraction– *16–28w* If food in stomach is vitalized one need not wonder at the power of the womb **378** *10–18m/12–13w* crystal **379** *19–25m/21–22m* **380** *1–7m/3?* **381** *wt* Have not crystals certain properties common to the whole & not to part? *1–3m, 1–10m, 4–14m* **382** *20–21u "toujours|accidentale"/w* crystal *25–28m, wb* Endosmos & Exosmos purely Physical action **384** *1–28w* The interruption of ordinary laws of classical attraction most striking character of life *13–26m/wb* Other final cause **388** *13–26m/ 24–25m* **392** *6–9m* **393** *16–27m*

LAMARCK, Jean Baptiste de *Philosophie zoologique* new edn, revised and introduced by Charles Martin, 2 vols.; Paris; F. Savy; 1873 [Down, I by Martin] ℘

LAMBERT, Charles *L'Immortalité selon le Christ* Paris; Michel Lévy Frères; 1865 [Down, I]

℘
231 *14–18m* **233** *11m, 14m* **256** *24–26m* **275** *12–16m* **279** *22m*
℘

LAMBERT, Charles *Le système du monde moral* Paris; Michel Lévy Frères; 1862 [Down]

LAMBERTYE, Léonce *Le Fraisier* Paris; Auguste Goin; 1864 [CUL]
hy, sp, tm, v

NB ✏ All used 1865
p.14 M. Gay✏; p.24 no runner; 37 5-leaved curious; 50,51 to p.63; 76
History 125; 127; 137; 221 ●; 230; 244 5 leaved; Belle Bordelaise not a Hybrid
14 *6–11m/w* Hautbois **24** *25–27m* **37** *17–20m* **50** *17–20m, 25–31m* **52** *19–23m* **53** *24–25m/w* Scarlet **57** *11–22m (Hooker)* **59** *1–2m/1u "c'est | subalpine", 27–31m* **61** *4–7m, 16–21m* **62** *25–30m, 31–32m* **76** *19–24m* **77** *35m, wb* not hybrid **125** *14w* 1683 **127** *28w* 1746 *29u "citées"/29–31m* **137** *11u "Fressant"/4–14w* 1766 all specs known 5 vars with some sub-vars of F. vesca **173** *23–29m* **221** *24m, 28–33m* **230** *13–19m, 21u "Belle Bordelaise", 28–33m* **244** *31–34m* **245** *1–3m, 4–7m* **379** *23m*

LAMONT, James *Seasons with the sea-horses* London; Hurst & Blackett; 1861 [Down, I]
beh, gd

NB 89 Drift wood on Spitzbergen from W. Indies & some N. country
141 Walrus fighting manner of
89 *7–18m* **141** *1–3m* **143** *9m, 25m*

LAMOUROUX, Jean Vincent Félix *Exposition méthodique des genres de l'ordre des Polypiers* Paris; Veuve Agasse; 1821 [CUL, pre-B, S]

facing viii *table.w¢¢* **5b** *32–33m* **11a** *20–22m* **107a** *20m* **107b** *19m* **108** *21m, table 31.w* Pavonia *table 57.w* Modespora *table 64.w* Cillepora, 12–16 F, 17 18 22 Cill *table 65.wt* Cilla – *table 65.wb* Tert◗

LANCIANO, Raffaele *L'Universo, l'artro e l'individuo* Napoli; Tipografia Italiana; 1872 [Down, I] ℘

LANESSAN, Jean Louis *La Lutte pour l'existence et l'association pour la lutte* Paris; Octave Doin; 1881 [Down]

LANESSAN, Jean Louis *Du protoplasma végétal* Paris; A. Parent; 1876 [Down] ℘

LANKESTER, Edwin Ray *Degeneration. A chapter in Darwinism* London; Macmillan; 1880 [CUL]
ci, dg, sx

NB male cirripedes the shorter cirripedes
the primitive cirripedes
reason for Mites being degenerated Spiders
Anclasma Ibla

LANKESTER, Edwin Ray *On comparative longevity in man and the lower animals* London; Macmillan; 1870 [CUL, I]
beh, ct, fg, h, he, in, oo, pat, sl, sx, ta, y

NB1 Bears on Natural Selection
p.75 Rate of Reproduction
I think I had better only say after discussing how long the series of changing cells goes on (perhaps for even senile diseases) that longevity is a more difficult subject & refer to this book.–

NB2 Who has ♣ discussed this obscure subject more fully than 2 other recent authors
Pangenesis 31, 36
Longevity & Individuation ♣
45 longevity ✓✏
do 71 ✓✏
76 ✓✏
Pang – 77, 108◆ ◆ Death-rate of married men
✓✏ 79 ✓✏
Summary on Longevity –✏ 87 Summary; 119
◆ 91 Struggle for existence between societies
◆ savages perish in old age from starvation – 117
◆ 120 Destruction by Intemperance; Table p.114
◆ 122 – The struggle for existence includes rearing children
◆ average mortality has increased – 126
◆ 128 on Fraser's article

31 *16–24m, 28–29m (Darwin)* **32** *12–20w* no, they multiply **33** *zt* OOOOOOOO *wt* the last will consume all gemmules in repair *wt* How many stages of metamorphosis *1–6w* I suppose after a time, same cell reproduced *8–14m/w* Gemmules? used up in repair **36** *1–11m/w* If any gemmule had but limited power of increase all wd be clearer **45** *1–4m/w* Parrots Tortoise? **71** *21–28m* **75** *28–30m, 28m/w* ? Herbivores *31m* **76** *17–23m/18u*✏ *"generative expenditure"/9–21w* greatly opposed to his belief **77** *13u "castrated animals"/12–15m/w* They ought to be for they retain gemmules ♣, *23–29m* **79** *8–12m* **87** *13–25m/17–22u*± **91** *6–11m* **108** *27–28m* **117** *5–8m* **119** *6–8m* **120** *28–29m* **122** *17–19m/15–20w* that not starved to Death, to marry & rear children **126** *7–9m* **127** *9–13m* **128** *20–24m, 26–28m/26u "social virtues"* **129** *19–21m, 30m, 31–33m/?, wb* No some differn in constitution same disease not twice
catalogue ℘

LARDNER, Dionysius (ed.) *The cabinet cyclopaedia; outlines of history* London; Longman, Rees, Orme, Brown & Green; 1830 [Down, I Charles Darwin 1839]

LATHAM, Robert Gordon *Man and his migrations* London; John Van Voorst; 1851 [CUL]
af, beh, cc, ds, ex, gd, h, ig, mg, no, oo, sy, tm, v

NB 49 Man & Monkey compared by summary, only numerical on Resemblances
SB1 ❒ℜ
p.47, 49 (If we cd we shd class Man by Descent, I think) p.74
p.62; 70
97 – ♦ Perhaps a decrease or unfavourable conditions might destroy the intermediate vars, or the increase of a new & better variety or species. when formed overtakes the intermediate vars.
123; 135; 156
SB2 ❑β
⊷ Latham Man & His Migrations – refer to & read these passages.
48. Quotes Owen with approval, teeth offering more valuable character because not surrounded by muscles.–
69 & 70 good remarks on contrast of sudden removal and the natural slow movements of spreading species or man.–
97. Excellent remark (quote in Ch. 6?) on how during incroachment, one var. will 123 do obliterate intermediate forms: I do not see force of Displacement .– If one form gains an advantage over the other independent of climate, it will overwhelm the graduated intermediate forms
74 Excellent remarks on classification by descent & resemblance
135 Clever remark on different climates which man inhabitants of Cape of G. Hope & of S. America must have passed through.– over
⟨*over*⟩ p.156 contrasts the primary diffusion of man, with that of subsequent diffusion, when man is opposed by man – N.B the wide & rapid spreading of introduced plant is something like this – its progress are not yet developed

47 *24–27m* **49** *3–11m* **70** *1–4m* **74** *6–17m, 26–27m* **75** *11–12m, 15–16m/16a "same"* descent *24u "Ethnology", 28m* **76** *2–7m* **97** *21–23m* **123** *26–28m* **135** *19–27m* **145** *wb*♦ 205 **156** *wt* But in quite open country man wd increase more rapidly *5–13m* **181** *8m/u "Comorin"/w* Matapari? **191** *6–9m*

LATREILLE, Pierre André *Histoire naturelle des fourmis* Paris; Théophile Barrois père; 1802 [CUL, pre-B]
beh

NB Abstract of Oct/58/
71 Winged ants ♣ carried low in nest when it is disturbed
73 Workers try to keep in winged individuals in nest.
title page *wt* Latreille died 6 July 1833 **71** *1–2m* **73** *3–6m* **140** *18w* B **143** *1w* B **150** *4w* B **151** *1w* B **156** *5w* B **159** *1w* B **166** *7w* B **168** *8w* B **195** *2w* B **246** *7w* B **251** *6w* B **255** *1w* B **257** *1w* B **259** *1w* B **345** *17w* 8 ⟨*number of eyes*⟩ **347** *4m* **349** *9–10m, 12u "Huit", 26m*

LAUGEL, Auguste *Les Problèmes de la nature* Paris; Germer Baillière; 1864 [Down, I]

LAUGEL, Auguste *Science et philosophie* Paris; Mallet-Bachelier; 1863 [Down, I]

272 *7–11m*

LAVATER, Jean-Gaspard *L'Art de connaître les hommes par la physionomie* new edn by M. Moreau de la Sarthe, 10 vols.; Paris; Depélafol; 1820 [CUL, pre-B]
beh, pat, phy, ss

vol. 1, Avis *19u "en 1807"* **209** *27u "ce | 1806"*

vol. 3, 139 *1w* Read to p.162

vol. 4 NB All read
♦ p.15 Camper Book; 17 Sexual Selection; 48; 52; 54; 120 sexual selection; 123 do
♦ 194; p.205 to end
Abstracted
p.194, 217 Plate of Muscles
15 *19–20m* **17** *15–17m* **48** *19–21m* **52** *7–10m/7w* Buffon **54** *4–14m (Maupertuis)* **120** *22–29m* **121** *13–15m* **123** *10m, 11–13w* all soft parts **205** *4–8m/5–7u "c'est | musculaire", 17u "celui | respiration", 18–20!!/20u "d'une | épisodique", 21u "parole à", 29–30*→ **206** *7–9m, 10–12m* **209** *22–25m/w/30m/wb* can it have been of service like language voluntary use to express ideas thus coming into aid of natural beginning → **210** *1–4m, 14–15m, 27–30m* **211** *1–4m/2u "suivant Haller"* **221** *18–22m* **222** *2–4m* **223** *23–25m/w* same as corrugator *27–29m/w* different from Duchenne **224** *14–18m/1–18w/wt* in opposition to the muscles which depress eyebrows in grief & concentrated thought **228** *24–26"...", 26a "concentrées"/wb* He then adds that these muscles from their attachment & position are fitted ♣ **229** *1–2m, 1–2u "principale | physiognomique", 3u*

"sentiments sombres", 3–12"..."◆ **230** *12–14m* **231** *25–29m* **237** *2–3m, 12–15m* **244** *12–16m* **263** *3–10m, 18–20m* **264** *23–24m* **274** *20–23m* **282** *14u "noir|sang", 15u "le|artériel"* **293** *9–11m/15–22m/8–23w* is most delicate abounds with nerve & tissues hence perhaps no other part could bleed so easily, & specially liable to be affected by cutaneous eruptions **300** *16–18m, 26–29m, 29m* **301** *3–9m, 17–26m* **302** *18–27m* **303** *1u "beauté|ébène", 13–17m, 19–28m/19u "par|front", 30m* **304** *2–7m* **305** *10–14m, 19–21m*

vol. 6, 27 *zt*

vol. 8, 274 *18–22z*

vol. 9 NB whole volume skimmed; 116 & they hear excellently Pampas; 266 Hope; 273; 278; 289; 293; 295; 299; 300
116 *8–13m* **266** *4–5m, 24–25m* **267** *27–29m* **268** *12–13m* **273** *13–15m* **277** *fig. 11.w* fear **278** *5–6m* **279** *7u "les|même"/w* drawing back *10u "prunelle|paraître", 25–26u "le|autre"/"...*/w frowning & astonishment together **280** *8u "voulant respirer"/1–8m/w* If I want to show what rubbish has been written a translation of this will do.– *13..."* **289** *fig. 19/20.w* sorrow *fig. 21/22/23.w* excessive pain *fig. 24.w* joy **293** *fig. 25.w* laughter *fig. 26.w* angry *fig. 28.w* passion *4a "fermés"* ie brought down at each end *3–8u±, 8–11m* **294** *4u "les|enflées"* **295** *3u "les|enflammés", 6–7u "narines|élargies", 8–10m, 11u "grinces", 13–15u "veines|hérissés"* **299** *19–21u±,* **300** *16–18m, 23–25m, 28–30m*

LAWRENCE, John *The horse in all his varieties and uses* London; Longman, Rees, Orme, Brown & Green; 1829 [CUL, on B]
ch, he, pat, rd, v

NB p.5; p.9; p.30; p.230,234; 265; 283
SB ❏β
30 Hereditary diseases of Horses
230 Changes in Fox Hounds Q✍
p.14 Tushes variable in Mare – Variable Rudiment
5 *25–26m* **9** *28–29m/*Q **14** *28–32m* **30** *17–22m, 24–29m* **230** *9–16m/7–8*Q **231** *20–24m, 27–33m* **234** *1–7m* **235** *23–25z* **265** *4–10m, 24–25*Q *26–32m* **266** *8–10m* **267** *1–3m* **283** *19–28m* **285** *25m*

LAWRENCE, William *Lectures on physiology, zoology, and the natural history of man* London; Benbow; 1822 [CUL, pre-B]
beh, cc, ch, gd, phy, rd, sl, ss, sx, sy, tm, wd, y h, sx, tm, v

NB ⇨ p484◆ 243 Blushing
172 ◆ position Heart – & other organs, clearly by form of thorax & attitude
Appendix vermiformis 191◆
Expression – Tears vented by various animals – 205
Sexual selection ◆ 272 274 276 Beard
◆ 393 Arabians beautified – Persian Chardin
397 Selection not applied to man (➾ by other men it shd be added)
Ure → 484 Ure's Q ✍ sense organs.
◆ 437 Pallas on changes of coats of domestic & wild animals in winter & summer.–
452◆ Eyes of Negros at Birth
317, 319◆ exaggerate form of Head
337◆ flatten nose
354 Ears
◆ 356 Tattoo females
◆ 357 Lips
◆ 366 Hottentot women
◆ 368 Baboons➾ steatopyga

vb *3–9m* **via** *21–24m, 40–55m* **vib** *17m, 57m* **viia** *17–23m* **viib** *1–7m, 22–30m, 24m, 59–61m* **viiia** *10–13m, 20–25m* **viiib** *1–7m* **ixa** *12–16m* **ixb** *2–10m, 15–20m, 43–46m, 53–62m* **xa** *27–34m* **xb** *3–22m, 38–60m* **172** *1–6m/6w⊄* **173** *12–18m* **191** *9–13m/11w* Ateles **204** *26–36m* **205** *7–11m* **243** *16m/u (Forster) "Observations|229"* **272** *3–10m, 30–33m* **273** *1–4m, 8–12m/8u "practice|extermination", 20–21u↔, 25–27m* **274** *9–11m, 18–21m* **278** *5–10m* **317** *25–31m* **319** *19–33m* **337** *30–32m* **354** *8–26m* **355** *1u "the|South"/1–4m* **356** *30–32m/32u "of|the"* **357** *1u "female sex", 19–21m, 24–25u↔* **366** *23–26m* **368** *31–34m* **393** *3–14m/7–11m/10–11w* found *20–28m, 31m/u "even|sprung", wb* Chardin *⥣5".../wb* Chardin says **394** *1u "on|countries", 8–14m/10..."/w* poor **397** *15–17m* **404** *21–27m* **405** *wb* In all parts of the world confined to one stock *wb* Pallas **437** *24–32m, 31u "Siberian roe"/wb* Capreoli Sibirici subecaudata *30–33u±* **438** *32–33m/w* & Gligium ordine 1778 **451** *30–34m, ⥣6–1m* **452** *1–2m, 5–12m*

LAWSON, Peter and son *Lists of seeds and plants* Edinburgh; Peter Lawson & Son; 1851 [CUL, I by W.J. Hooker]
v

NB Oct 1857 O/
p.65 Hollyocks; p.67; 87; 179; Nuts, Currants & Gooseberies described 206 Synonyms of fruit; p.20 Grasses
12a *10–11w*✍ 16 vars **13b** *19–20w*✍ vars 21 **65** *35–37m* **67** *11w* How many **87** *1w* How many vars. *2w* 3–5 feet *4u "constant"* **179** *23–29m, 35–42m*

LAWSON, Peter and son *Treatise on the cultivated grasses and other herbage and forage plants* ⟨bound with previous item⟩

20 *8–14m, 21–29m, 21m* **23** *3–7m* **27** *22–23m*

LE **BRUN, Charles** *The conference of Monsieur Le Brun, chief painter to the French King, chancellor and director of the Academy of painting and sculpture* London; John Smith; 1701 [Down, pre-B]

LE COUTEUR, John *On the varieties of wheat* Jersey–London; H. Payn & H. Wright; n.d. [CUL, I to C Darwin Octob 1841]
ad, cc, cs, dg, fg, he, mhp, no, oo, phy, sl, spo, v

NB Introduction & p.1 to 79; p17✏
SB vi variability of common wheat. adaptation to different soils
p.6 150 vars
12 chance origin of some vars X✎
15,16 careful selection of separate ears of corn in Columella's time & Virgil
52 disbelieves necessity of change of some seeds but then he studiously varies the manure
55 1/10 of seed perishes even with greatest care Q✎
59 on one variety soon predominating over (good) another in wheat & hence called degenerating (He has shown how every little trifle is heredetary) without destruction Q✎
65 an incorrigible tendency to sport in some vars. Q✎
66 Talavera does not cross because flowers earlier Q
70 Wheat seems affected by climate whence derived (Evidently believes in crossing)
23 Habit of growth differs
proportion of gluten
64 flower at different periods
79 quality of straw

vi *6–8m/4–12w* Henslow corroborates the degree of variation in wheat **vii** *22–24m* **2** *2–5m, 28m* **3** *11–13m* **5** *10–12m, 11–13m/!/12u "perfect oats", 19–20m* **6** *4–6m, 24–25m* **8** *15–18m* **11** *15–17m* **12** *1–4m, 5–6m, 26–27m* **13** *8m, 17–20m* **14** *15–20m/19x*✏ **15** *10–12m* **16** *3–5"...", 5–6m, 9–10m* **17** *4–5m/4u "similar appearance", 9–15m*✏*/10u*✏ *"to | sorts"* **22** *17–18m* **24** *1–2m, 5–7m, 17–18m* **26** *22m/u "is | tall"* **35** *3m/u, 15–16m* **38** *8m, 13m, 16–17m* **41** *16–19m/17u "fourteen"/19u "forty-two"* **47** *1–3m* **52** *8m/u "is | idea", 23–24m* **53** *4u "grown | land", 5u "becomes | with"* **54** *5–6m/5u "brick | all"* **55** *14m/u "one-tenth", 27–28m/27u "seven varieties"* **58** *3u "degenerate", 8–9u "has | quality", 10m/u "less suited"* **59** *wt* ◆ the same proportion wd exist *2u "were | seed", 4u "be | degenerated"* **60** *7–9m* **64** *6–8m/6a "some"* different *6u "some varieties", 23u "A | 7"* **65** *5–6u "three | ears", 7u "two hundred", 8u "twenty-one"/w* 2 *9u "eighty six"/w*✍ 3 *10u "and | smooth"/w*✍ 4 *12u "ear | discovered", 13u "mixed | corn", 19u "Kentish | seedling", 26u "smooth ears", 27u "appearance | grain"* **66** *2u "eight | sort", 3–5m/3u "it incorrigible", 5–7m/7u "is | pure", 11–13m* **67** *9–11m* **70** *9–12m* **79** *20–21m, 23–24m, 26m*

LE COUTEUR, John *On the varieties, properties, and classification of wheat* 2nd edn; London; W.J. Johnson; 1872 [Down, I]

LECOQ, Henri *Études sur la géographie botanique de l'Europe et en particulier sur la végétation du plateau central de la France* 9 vols.; Paris; J.–B. Baillière; 1854 [CUL]
af, cc, ch, cs, dic, ex, f, fg, gd, hl, hy, ig, in, is, mhp, no, oo, pat, phy, sp, sx, t, tm, ts, ud, v

vol. 1 NB ✏ Index at end of Vol 9–
SA *⟨pp. xv–1; 10 sheets⟩* ❑β *except that referring to vol. 2*
✍
Lecoq. Vol. I ✏ (Put in at end of Vol 9)
8. Number of species & number of individuals not correlated in Coniferae
✎ Red mark cross pollination & Dimorphism
56. Alpine plants often do not mature seed.
80 Saline plants in Puy de Dome !
139 Ref. to Catalogue of Plants of central France with rarity marked.
✏ A good deal about Tyme-like flowers 2 forms
144 Terminal flowers often different from others
159 Natural Hybrids
162 Hybrid Primulas fertile ✓✎
165 Isid. Geoffroy on close representative species.
170. good remarks on resemblance of American & European plants & on Arctic plants varying much, explained.
182. Increase of Branchiae from use & of Lungs from disuse in Proteus submerged.
194 Alpine plants bud at fixed time when transplanted
197. Vars. of Solidago flowering at different times
207. Von Buch on small genera in Islands ♣ Believe in mutation of species & so Lecoq
209 Land Mollusca of distinct species seen

in copulation
250. Lecoq believes in Transmutation
✏ Feb. 7 1877 I have copied all I want for quotation○
✐ Vol 2.
♦ 162 plants standing very different climates – Lapland & Greece
199 Atlas & New Grenada plants in comm.
205 Alpine Plants good
283 Forms which have wandered from Tropics
289 do.– Isolated Tropical forms
331 species ranging from high to low on Mountains
404 Alpine plants
406 do
410 alpine plants; their varieties
412 do
414 do – Middle heights have most peculiar forms
419 Alpine vars & intermediate vars.
♦ 430 duration sign of Highness he remarks
162 Plants ranging from Lapland to S. Granada; 32 in number.–
✐ Vol 3
71. thinks annuals highest forms!
72 Only one annual dioicous ✓✎
75 few monooecious.
76 on proportion of Trees with separated sexes ✓✎
79 on separation of sexes all good & curious ✓✎
80 Extraordinary cases of separation of sexes under different latitudes, like Ivy case. Imperfection of Nature
94 Imperfect flowers of Violet
102 On diversity in same species in flowering
161 different periods of flowering of same species on X✎⟨♦✐⟩ plain & mountain – a day for 90 ft
182 flowers which open at night
211. Replacement of one group by another
214 Changes♦ in plants in pastures
222 Parasitic plants generally on very different plants – – gradation in degree
257 Northern Trees unarmed. by thorns
287 villosity character of plants in warm countries X✎⟨♦✐⟩ & not of mountains – 291. dryness most effect
X✎⟨♦✐⟩ 405, 7 Piebald flower for crossing, like Gallesio
410. do striped flowers
✐ see Back
✐ Vol. 4.
4 White flowers steadily increase from S. to N.
11 In Arctic few bright

14 So on mountains
27 On smell of flowers Dichogamy
57 On social plants – to 68 on do
73 do
80 definition of sum of life
86 association distinct from social
207 Association parallel in different regions
233 representative species or vars.–
237 parallel species in different soils
239 do
272 On absence of certain forms in Islands
304 on struggle between allied Plants
407 Some sp. of Clematis polygamous D.
425 Some with aborted female fl. 431
470 Shady var. of Ranunculus no petals
482 Ranunculus sceleratus, or Dichogam.
488 Caltha polygamous D
497 Helleborn, probably by insects. D
514 Aconitum a Dichogam
⟨*not CD;* ✍⟩ Vol. V.⟨*u*✐, *CD*⟩ D. means Dichogamy
p.6 & 15 crosses wd be difficult
p.22 & 26 Fumaria self impregnated
p.157 Cistus clouds of pollen in early morning.
p.180 ✓✎ ⟨*CD*⟩ Viola imperfect flowers alone seed
p.196 Drosera flowers open only in sunshine
p.200 Parnassia D.
p 227 D. p.241 D.
p 242 Silene five stamens often aborted
p 246 D 250♦ 249 D
p 252 a Diochous Silene
p 257 Lychnis
p.273 Arenaria with viscid glands.
p.288 Holostium flowers very sensitive to light
– 295 Stellaria D
– 305 & 309 Cerastium stamens move to pistil
– 317 Linum catharticum stamens move to pistil ✓✎ ⟨*CD*⟩
– 331 – 332, 336, 338. ⟨*CD*⟩ Malvatiae D
⟨*over*⟩
367 Acer eminently polygamous
371 Vine pollen of carried by air American Diooichous.
377, 379, 380. Geranium D. fertilized after petals fall
397 Erodium D ?
384, 387, 391. Geranium D.
397 Erodium D ?
401 Impatiens dimorphic
411 Ruta fert. by second set of stamens.
416 Erconymus. the upper flower often has 5 parts like Ruta the other flowers having 4 ✓✎ ⟨*CD*⟩
418 Paliurus one of the Rhamnic D.

420 Rhamnus Catharticus male & female trees have different kinds of leaves – is dioicus & hermaphrodite ✓✎ ⟨*CD*⟩
422 R. infectorius dioicus. R. alpinus ditto
✏ ⟨*CD*⟩ Vol 5. continued
✍ ⟨*not CD*⟩
424 R. frangula. flowers for the most part hermaphrodite
426 R. alituruus. dioicus
468 Ononis. dimorphic
481 Medicago – its fruit twisted either to the left or right, whilst in most species the twisting is from left to right. ✓✎ ⟨*CD*⟩
513 Trifolium subterraneum buries its fruit.
✏ ⟨*CD*⟩
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15. Spiraea fertilised when flower opens
40 F. Elatior Dioicous
88 Potenium – monoicous & yet dioicous in function
118 Epilopicum some dichogam some not so. 121, 125, 126, 128
133 Cricaea do?
156 – Lythrum – species.
160, 166 Byonia, Portulacea Tropical forms
200 Sedum, some species dichogamous
209 Sedum with 2 kinds of flowers differing in number of petals & stamens
214 Sempervivum curious case of Dichogamy. showing slow regular movement of stamen not to impregnate – as in Berberis.–
224 Ribes ♣ sexes separated
262 Sanicula polyg – female dichogam. Umbelli=
266 Eryngium dichogam =ferae
273 do. 275 do, 277, 283,, 289, 310, 318, 323
367 (not all Umbelliferae marked)
310 Foeniculum central ♣ umbels sterile. 335, 344.
335 Imperfection of structure
371. Hedera dichogam
⟨second sheet⟩
Vol 6
376 Cornus – in fact monooecious
386 Adoxa 2 kinds of flowers
402 Lonicera periclymenum fertilised in bud.
420 Rutia (Rutiacea) nocturnal
425 Galium tricorne polygamous
429 Galium anglicum do – day flower
473 Knautia (Dipsacea) strongly polygamous.–
477 Scabiosa ♣ succisa do –
✐ Vol 7.
357 Pyrola minor apparently dimorphic
369 Holly dioicous, sexes unequally separated

391 Menyanthes dimorphic
400 Gentians Dichogam, 401, 403, 406, 407
449 Echium vulgare dimorphic
452 Pulmonaria angustifolia do
504 Gratiola (Personata) dichogam ✓✎ (Scroph.
526 Erinus (do) fertilised in bud
538 Veronica spicata dichogam
573 Lathrae fertilised in bud –
✐ Vol. 8
6 Lavandula fecundation in bud
9 Mentha syrhastus dimorphic peculiar |✎
26 Origanum vulgare dioicous by abortion |✎ ✓✎
29 Thymus from Vaudan dimorphic |✎
32 Satureia dioicous |✎ occurs
37 Calamintha dimorphic. do. |✎ when flowers
44 Hyssopus do |✎ almost
48 Nepeta do ✍ – same as Glychoma |✎ regular
74 Stachys dichogam –
146 Hottonia dimorphic
150 Cyclamen Dichogam. ✓✎
157 Globularia female Dichogam
241 Polygonum flower different in Water & out.
254 Stellera, fertilisation of
324 Celtis a true dichogam & polygamous
326 Ulmus – do – do
535 Crocus fecundation in bud
557 Asparagus dioicous
✓✎
✐ Vol. 9
393, 431 Lecoq believes in Modification by conditions of life
395 changes in kinds of trees in Denmark
411 on single species of group with immense ranges
414 when species numerous, range restricted
423 In Compositae the feather separate from seed!!
128 Juan Fernandez proportion of endemic plants
435 relation of Madeira to America
438 More disjoined species in N. than in Tropics & we can see cause in Glacial
445 Cyperus & Pteris by Hot Springs of Ischia old Tropical plants left there, says
455. All this Alpine plants common to Finland & New Grenada make stage of Alps(?)
482 passage for my Orchid Book on Diversity of Orchids.
(I began reading this volume at only p.386 –

8 *23–29m* **56** *16–22m* **80** *2–6m* **139** *24–31m* **144** *21–23m* **159** *12–23m* **162** *8–14m* **165** *1–*

16m **170** *7–17m, 26–31m* **171** *8–10m, 11–16m, 25–27m* **182** *25–29m (Schreibers)* **183** *31m* **194** *17–32m* **197** *5–8m/5u "alpestris"* **204** *18–26m, 32u↔/w/wb* Do my tables show more or less vary. in Monocotyl?? **205** *1–5m, 7–11m, 13–14m, 32→* **206** *7–12m, 13–14m (Goethe), 30–32m/31–32u↔* **207** *15–23m* **209** *25–30m* **229** *23–32m* **250** *wt/1–3w* From certain other passages, it is here difficult to know how far he extends his belief in the modification of organic beings *4–12m* **287** *20–28m*

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162 *32–34m* **199** *28–32m* **205** *20–21m, 23–24m, 25–27m 29–31m/→* **206** *2–8m, 26–29m* **207** *3–9m, 10–12m, 18–23m/19u, 32→* **208** *8–10m* **283** *2–6m/4w* which *4–5u "80"/6–10w* ask Hooker are these large genera? *7–20m/ 10–11u↔, 22–27m* **289** *5–9m, 10–15m, 22–30m* **331** *21–25m, 25–27w* ie plant How little climate has to do with Heather *30m* **332** *"plupart* | *espèces"/16u "cette catégorie"/12–17m/w* ie plant growing at various heights between 6000 ft *24–25m♦* **402** *8–10m* **404** *10–12m* **405** *30m* **406** *5–10m* **410** *21–30m* **411** *6u "par* | *Heer", 16w* var. *16–17w* all Mountain vars. **412** *wt* cor-responding varieties & corresponding species *12w, 14w, 16w, 17w, 18w, 19w, 21w, 22w, 23w, 24w, 26w, 27w* species **414** *7–14m/9–12w* would there be more struggle then? *17–21m* **415** *1–2m/3w* Mntains **419** *4–6m, 8–9m, 11–14m* **430** *8–16m*

vol. 3, 71 *22–27m* **73** *26–29m/29u "dioïque"* **75** *1a/u "monoïques"/wt* or annuals *11–13m, 18u "1:35"/w* 1:12 in polycarpius **76** *10–11m, 25–29m/w¢¢, 28–29m, wb* ie more than a 1/3 of polycarp plants with separate sexes are trees **77** *1–2m/2u "monoëcie"/3u "dioëcie", 25–30m* **78** *9–12m, 27–29m* **79** *7–8u "particulière* | *dioïquement", 11–13m, 14–20m, 14–15w* imperfection *23–27m* **80** *1–5m* **94** *26–32m/28u "intéressant mémoire"* **95** *5–7m/6m/u "colorées* | *Hortensia"/w* = Hydrangea same as **96** *27–30m* **102** *17–23m/w* imported ? by nuts? **161** *20–24m/w* bears on crossing *31–32→* **162** *16–18m, 20m, 21u "vernales"* **182** *15–19m, 26–32m/32u♠* **183** *2–7m/3–4u "oenithères* | *épilobes"* **185** *20–30m* **211** *19a "gordura" →*1 *6u♠, 16–19m/18u "graminée"/w* replacement of one group by another *21–29m, 25–26m* **214** *17–25m* **215** *25m* **216** *6–10m* **222** *22–24m* **223** *22–32m* **257** *4–7m* **287** *4–7m* **288** *10–13m* **291** *22–26m* **405** *12u "une* | *couleurs", 20–32m/20–25u±/w* piebald **406** *wt ⟨results of the crossing of 3 varieties of colours⟩, 3–4u↔, 29–32m/w* perhaps from a cross **407** *1–3m, 16–19m/17–18u "qu'une* | *panachures", 21–25m* **410** *4–11m* **411** *14–18m*

vol. 4, 4 *26–31m* **5** *1–4m* **11** *7–10w* Mem Bates on insects **13** *23–30m* **14** *26–28m/31–32m/25–32w* Partly cold in both cases **26** *24m, 24–27w* white flowers sweetest **27** *14–16m* **57** *8–9m* **58** *1u "orchis", 3u "seconds", 14–16m, 22–24m, 23–25m, 32m/u "augmenter"* **59** *1–2m, 32m* **60** *11–12m, 17–19m* **61** *1–4m, 32m* **62** *29–32m* **67** *10–12m (Humboldt), 22m, 25–29m, 31m* **68** *12–16m* **73** *1–7m/1–15w* I have seen Heath at ● isolated shows that they can live separate – bad term "social".– false term **80** *25–28m* **86** *21–25m, 27–30m* **207** *12–24m, 26m* **209** *11–14m, 15–21m, 21–25m* **233** *30–32m* **234** *1–5m, 18–32m* **237** *7–10m, 14–17m* **239** *12–30m* **272** *1–9m, 11–18m* **273** *6–7w♦/6u "Coprosma", 13–18m* **293** *22–27m* **304** *11–16m, 19–32m* **407** *11–16m* **425** *28u "Quelques fleurs"/28–31m/w* It is not second distinct plant **431** *22–26m* **466** *11–14m, 21–27m* **470** *21–26m* **482** *10–19m* **488** *12–18m* **497** *25–30m* **514** *18–23m*

vol. 5 NB Vaucher's Book p.142
SB 6–15 makes crossing difficult; 22; 26; 157; 180; 196; 200; 227; 241; 243–246; 249; 252; 257; 273; 288 flowering sensitive to light; 295; 305; 309; 317; 325 Linum; 331; 332; 336; 338; 367; 372; 377; 379; 380; 384; 387; 391; 397; 401; 404; 411; 416; 418; 420 to 426; 430; 469; 481; 513; Abstracted
6 *10–16m* **15** *10–13m* **22** *12–15m* **26** *6–11m* **157** *4–10m* **180** *4–13m/7a/u "fleurs"/w* cleistogam **196** *15–20m* **200** *3–4u "ses* | *glanduleux"/w* any movement? *6–9m* **227** *14–19m* **241** *9–17m* **242** *23–26m/24u "il* | *étamines"* **243** *17–21m* **246** *18–27m* **249** *24–29m* **252** *6–8m* **257** *29–32m/w* but will they fertilise **273** *30–31m* **274** *4–8m* **288** *2–6m* **295** *2–7m* **305** *10–12m* **309** *7–12m* **317** *1–4m* **325** *7–14m, 10–12m* **331** *22–24m* **332** *26–28m* **333** *29–30m* **336** *1–4m* **338** *21–25m* **367** *26–30m* **368** *2–28m* **372** *6–14m* **377** *17–21m* **379** *13–14m* **380** *23–27m, 27–28m* **384** *7–14m* **387** *1–3m* **391** *26–29m* **397** *7–12m* **401** *6–10m* **404** *19–22m* **411** *1–6m, 14–20m* **416** *16–19m* **418** *26–29m* **420** *25–29m/w* Mem R. Lanceolatus **422** *6–8m* **423** *5–6m* **424** *12–13m/12u "hermaphrodites"* **426** *8–11m* **430** *1–4m* **469** *1–4m, 29–30m* **481** *3–8m/5–6u "plupart des"* **513** *2–15m*

vol. 6, 15 *25–30m* **40** *19–22m* **88** *15–27m* **118** *7–11m* **121** *17–20m* **125** *2–4m* **126** *15–18m* **128** *7–9m* **133** *24–27m* **156** *2–30m/20–22w* p.158
158 *20–25m/20u "déploient* | *fin"*
⟨between p. 158 and p. 159, tiny fragment of a letter⟩
160 *1–7m/5u "il* | *stérile", 26–28m/w* Balsanus another case **162** *28–32m* **166** *2–7m* **200** *18–27w* 210 206 p204 not so some other

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species *23–29m* **204** *10–14m/12w* 206 **206** *26–30m* **209** *10–14m, 32→* **210** *18–23m* **214** *21–28m* **224** *13–19m* **262** *20–23m* **266** *26–30m* **273** *18–22m* **275** *25–28m* **277** *1–3m, 35m* **283** *10–13m/13u "cela | Ombellifères"* **289** *16–19m* **310** *12–17m, 12u "petits | souvent", 15u "que | stigmates"* **313** *21–26m* **318** *20–26m* **323** *15–17m/17u "avance | stigmates"* **333** *21–24m* **335** *15–24m/22–23u "Il | semences"/24u "ne | placer", 27–29m* **344** *23–28m* **367** *1–5m* **371** *3–6m* **376** *1–7m* **386** *7–14m/w* 2 kinds of flowers *15–18m* **402** *1–6m* **420** *23–26m/23u "Elle | celles"* **421** *23–25m* **425** *5–10m* **429** *9–12m/11u "s'ouvrent | soirée"* **473** *3–9m, 4–6u↔, 6–9w* fertility because so strongly protandrous. **477** *28–31m*

vol. 7, 357 *23–25m/24u "inclus | saillant"* **369** *17–23m* **391** *12–14u "dans | cilié"* **398** *16–20m/17u "toutes"/w* no! **400** *10–13m* **401** *26–28m* **403** *11–13m* **406** *15–17m/15u "tard, seulement"* **407** *22–25m* **449** *29–31m* **452** *18–21m* **504** *19–22m* **526** *11–17m/w* other cases of assertions not always marked **538** *14–19m/14u "indirecte"* **573** *9–21m*

vol. 8 SA ⟨*pp. 144-5: fragment of an abstract*⟩ are tied together by a few weak elastic threads
6 *11–13m* **9** *24–28m* **26** *17–22m* **29** *10–13m/12u "La | mâle", 14–16w* good cases of gradation *16–18m/17u "toujours | avorté", 20–28m, 29–32m* **32** *16–22m* **33** *21–29m* **37** *1–7m* **38** *15–26m* **40** *23–29m* **44** *20–23m* **48** *3–5m* **74** *3–9m* **129** *13z* **141** *wb* & in Europaeo-arctic contrast○ ● some not differ ● from Keeling & P◗ **142** *1–3m* **143** *6u "moyenne | australe", 9u "40", 10u "50"* **146** *7–13m* **150** *18–21m* **157** *4–8m* **241** *1–9m* **254** *17–21m* **324** *1–3m, 14–21m* **326** *15–17m* **535** *26–29m* **557** *10–14m*

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395 *10–14m, 17–24m* **397** *25–27m* **411** *5–10m* **414** *11–17m* **423** *14–18m* **428** *27–30m* **431** *6–14m* **435** *1–28m* **438** *19–26m (de Candolle)* **445** *13u "Tenore", 14–15m, 21–26m* **455** *30–32m* **482** *7–9m, 26–31m*

LECOQ, Henri *De la fécondation naturelle et artificielle des végétaux et de l'hybridation* Paris; Audot; 1845 [CUL]
fg, mhp, mn, sp, spo, tm

NB ♦ p5 p6 Books Appendix ordered
title page *17–18u↔* **xv** *1–3m/1u "ébranler"* **4** *6–25w* contrivances & movements of anthers & pistil **5** *16–21m/w* pollen shed first before flower but contact afterwards *28–34w* In Veronica impregnation when corolla falls with pollen at its base **6** *3–4w* so in Iris *16–19w* Use of Hairs on corolla **9** *1–4m/w* flower under water & secretes air **16** *11–12u "quand | étamines", 14u "position | organes", 17–20m, 20–23m/21u "une infinité", 25–26u "à | indirecte"* **18** *13–18m* **21** *1–3m/1u "habitude"/2a "acquise", 21–23m/22–23u "surtout | nouvelles"* **22** *11–25w* At Maer Gardens new case of Polyanthus seedlings all sports of Primrose *30–33m/32u "primevères"/33u "primevère"/w* Ch. 4 *wb* shows the primrose can cross **34** *14–20m/w* pull petals off double flowers **39** *14–23m/17w* oh *33–34m (Vaucher)* **43** *17–22m* **44** *1–3m/1u "directe | indirecte"* **52** *30–32m/30u "monoiquement"* **53** *24–25m, 26u "doit | indirecte"* **61** *13–15m* **70** *1–4m/2–3Q 27–28m/27u "à | défloraison"* **71** *1–2m, 6–7m* **72** *16–17u "stigmate | étamines", 17–19m* **73** *7–8m* **75** *2–5m, 15–18m* **77** *17–21m, 27–29m* **80** *7–11m, 25–29m* **81** *15–17m* **85** *3–9m, 19–21m* **87** *4–7m* **92** *10–13m* **95** *3–5w* are these Trees *9–11m, 26–27m* **97** *2–4m/w*✍ How false *29–30m/30u "légèrement | époque"* **99** *1–2m, 25–28m* **101** *14–16m, 18–20m* **102** *9–12m, 33u "entouré | poils"* **103** *1–5m, 5–9m* **105** *6–7m* **115** *8–12m, 13–18m* **119** *9–12m, 19–21m, wb*♦ Good to contrast flowers & fruit. **124** *15–19m* **128** *1–7m, 7–14m* **129** *6–7m* **131** *5m* **142** *16–19m* **176** *5–10m* **179** *8–12m* **195** *6–9m, 10–13m, 23–28m* **196** *2–7m* **197** *7–9m* **203** *10–12m*♦*/11u "les poirées"/12u "leurs feuilles", 15w* 2 species **208** *5–8m* **218** *30–31u "On | autres"* **219** *1–4m/2–3u "quoique | indirecte"* **234** *20–24m/21–22?* **238** *30–33m* **239** *19–25m/22u "M. de Bure", 30–32m, wb* Look in Pritzel **240** *11–13m* **243** *1–3m* **253** *20–22m* **268** *29–32m* **269** *26–28m* **270** *23–29m* **272** *19–23m/20u "plus | variétés", 25–27m/25u "Seringe | Philippas"* **273** *9–12m*

LECOQ, Henri *De la fécondation naturelle et artificielle des végétaux et de l'hybridation* 2nd edn; Paris; Libraire agricole de la Maison rustique; 1862 [CUL]
cs, dic, f, fg, he, hy, mhp, mn, ta, tm, v

NB 76♦ Orchis sterile like Scotts case X
79♦
81 Nectar aids fecundation
92, 94; 126
220 Natural Hybrids
233♦ Flower of circumference more often double in Compositae X
303♦ Mirabilis crosses of X =panachures=
308♦; 311; 315♦; 325; 335; 338
<u>Get a Stapelia</u>
368♦ – *Parentage of Gladiolus gandavensis*
393♦ Seeding & growth antagonists
404; 411
SB ❐ℜ ✍

p 81 ⟨*not CD*⟩ Nectar aids fertilization
p.404
p.93, 95 on Trollius, open flower, crossing spont.
126 Reseda dichogam
220 spont. Hybrids of Sedum
311 Hybrids from 2 sp. of Mirabilis sporting so much as to be very different
315 on Hybridisation causing type to break ✏ or vary
325. reversion in Hybrids p.237
Hybrids becoming more fertile with age & very fertile
335 Cannabis & Morus <u>clouds of pollen</u>
338 Fertilisation of Ficus
411 in some Graminae stamens short & remain enclosed in florets.–
✏ Lecoqs. Fertilation

title page *17w*✍ 1862 **76** *24–31m* **79** *12–17m*/ *12–14*Q **81** *26–31m* **92** *19–21m/19u*♠*/20u*♠*/19–23w* sporting **93** *1–5m* **94** *11–14m/ 11–12u "au | cette", 26–30m* **126** *14–17m* **220** *1–22m/5–6u "tous | infécondes"* **233** *1–7m* **302** *5–10m/6u "guère de", 8u "presque", 13–15m, 12–13u "presque | identiques", 21–23m/21u "panaché"/ 22u "deux | fondues"* **303** *17–23m, 26–27m, 35m* **304** *6–9m, 11u "Rouge | primitive", 24–28m* **308** *4–12m* **311** *1–3m, 12–18m, 31–35m* **313** *15–17m/17–20u*± **315** *3–5m* **325** *4–6m/4w* reversion *12–13m, 35m* **326** *31–35m* **327** *3–7m* **335** *3–5m/4u "de | nuages", 28–30m* **338** *5–15m, 23–24u "Elles | maturité", 21–27m/w* but generally are sterile **368** *18–22m* **369** *7–10m, 19–21m (Herbert)* **393** *5–27m* **404** *6–9m/w* wetting stigma with honey keeps from pollination **411** *9–10u "Quelquefois | filets"/w* what

LEES, William *Elements of acoustics, light and heat* London & Glasgow; William Collins & Sons; 1877 [Down]

LE HON, Henri *L'Homme fossile en Europe* Bruxelles; C. Muquardt; 1867 [Down]

NB O/
vii *14m* **ix** *9m*

LEIDY, Joseph *The ancient fauna of Nebraska* Washington–New York; G.P. Putnam & Co.; 1853 [CUL]
fo, gd, geo, ig, sp, ti

NB 8 List of Tertiary Mammals; 17; 24; 29; 57 Nebraska Mammals very close; 67 good name; 78; 79; 95
SB ❑β; •◇
8 List of all fossil mammals
17 paridigitata & Imparidigitata
24 Intermediate forms 29 do
57 relations of European & N. American fossil mammals 67 do. 78 do.
79 & 80 Rhinoceros apparently older in N America than in Europe
95 Machairodus in N. America.–

8 *1–6m, 41m* **17** *27–29m* **24** *27–28m* **57** *19–23m* **67** *2u "Imparidigitata"/w* Paridigitata *22m/w* European genus **78** *24–27m/25a "Titanotherium"* close to Palaeotherium **79** *2–6m, 12u "two species", 16a "Rhinoceros"* What age? *17–18m/15–20w* I think none so old in Europe as Eocene or older Miocene **80** *30–33m* **95** *18m (Owen)*

LEIDY, Joseph *Contributions to the extinct vertebrate fauna of the Western Territories* vol. 1 *Fossil vertebrates* Washington; Govern ment Printing Office; 1873 [Down]

vol. 1, 154 *2–5m* **155** *18–19m* **160** *37–41m*

LEIGHTON, William Allport *Lichen-flora* Shrewsbury; printed for the author; 1872 [Down, I]

LE MAOUT, Emmanuel and DECAISNE, Joseph *Traité général de botanique* Paris; Firmin Didot frères; 1868 [Botany School, FD]

LEMOINE, Albert *De la physionomie et de la parole* Paris; Germer Baillière; 1865 [CUL, S]
beh, h, he, pat, phy, t, ti, tm, y

NB 19; 28; 30; 32; 41 to 135; 181 Expression; 185♦ Man; 190; 160 Hamburgh○
19 *4–10m* **28** *4–5m/"..."* **30** *8–10m* **32** *21–25m (C. Lebrun)* **41** *22–24m (J. Parsons)* **42** *20–24m*♦ **48** *1–6m* **50** *17–22m* **53** *11u "cherché | raison"/11–12m (C. Bell)* **54** *1–5m* **57** *22–25m/ 22w* Bell **58** *1m, 10–12m* **59** *8–12m* **60** *4–6m* **62** *17–25m* **65** *5–8m* **69** *19–25m* **70** *1–15w* voluntary mvment & action of Heart & Mind all asserted *21–23m (C. Bernard)/w* sur les Tissus vivants?? **72** *6–10m* **74** *12–14m* **78** *3–7m* **83** *6–22w* He objects no proof, but one can see whether agrees with common experience **87** *14–19m* **89** *3–5m, 7–25m/14u "dédain"/ 8–18w* avoid such compound emotions hard to define *19u "mépris"* **91** *17–19m* **92** *wt* Child may be attentive to any arousal or pleasure, as sucking, & no howling. *1–2m, 3u "front | sourcil"/w* grief ? *5u "pensées",* ↕*w/wb* If one thinks ever so attentively on pleasant subject, no

contraction of brow, but if an puzzle or difficulty occurs, though not actually unpleasant, brow contracts, every ♣ difficulty during early infancy accompanied by this movement. ♣ Perhaps aided by vision in primordial times.– But why not corners of mouth?? With infant first beginning is the frown.– **93** *5m, 19–20m/!?/20u "sphincter*|*iris"* **94** *21u/21–25w/wb* Does iris contract under emotion – well shown to do so in Brain affection? Bowman, How in paroxysm of mania? **95** *15–18m* **99** *19–22m* **101** *1–7"..."/m/ w* Sir C.B whose merit has been fully appreciated by late French writer **103** *13–14m, 15w* Instinct *16–19m/17w* doubtful **104** *wt/1–8w* argues from difference of observers & writers that there can be no innate knowledge – but we can tell family likeness *16–20m* **105** *12–16m/w* taught by exper **107** *2–10m, 16–21m/19–20u "baisse*|*tête"/w* not to be seen or hide faces **109** *7–10m, 20–25m, wb* Children cry for aid, voluntary **110** *5–8m* **118** *2–4m/wt/1–3u "que*|*poussé"/w* animals do **125** *7–10m* **126** *2–5m, 9–11m/ 10u "souriant*|*effraye"* **130** *13–18m* **135** *4–6m, 8–10m* **181** *9–12m/1–10w* Bowman.– Person born blind blushes?? for shame *16–25w* do they look downwards? or cast their eyes down.– *wb* whether blush as much or at all? not redden for anger.– **185** *1–3m/w* Tylor shows they do invent **190** *7–10m/7u "parole"* **191** *4–10m, wb* a stone first instrument of man & monkey **197** *1–6m/3–4w* laws of mind

LEMOINE, Victor *Recherches sur les oiseaux fossiles des terrains tertiaires inférieurs des environs de Reims* Reims; F. Keller; 1878 [Down, I]

LEPELLETIER de la Sarthe, Alme *Traité complet de physiognomie* Paris; Victor Masson & Fils; 1864 [Down]

NB O/
Rubbish !
℘

LESSON, René-Primevère *Manuel de mammalogie* Paris; Roret; 1827 [Down, pre-B]

29 *19–22w* F. ascribes to Cuvier **39** *5–8w* L. Hunt **42** *6–7m, 8–9w* ? Smith *38w* ✂-onett **43** *9–15w* Pig ✂ **45** *9m, 15u*✍ *"lubricité"* **46** *5–6m* **47** *13w* No

LESSON, René-Primevère *Manuel d'ornithologie* 2 vols.; Paris; Roret; 1828 [Down, pre-B]

LETOURNEAU, Charles *Physiologie des passions* Paris; Germer Baillière; 1868 [Down]

NB1 95◆; O/
NB2 O/

LEWES, George Henry *The history of philosophy* 3rd edn, 2 vols.; London; Longmans, Green & Co.; 1867 [Down]

LEWES, George Henry *The physical basis of mind* London; Trübner & Co.; 1877 [CUL, I]
ad, beh, cc, ds, oo, t, ud

NB 43; "External conditions of existence" – 45; 71, 2 On use & Disuse → 104, 7; 110 definitions of Struggle & Adaptation; 120 Organisms descended from several primordial forms; 124; 126; 377 Expression ⟨*other notes, by FD*⟩

43 *2–5m/3u "external*|*existence", 30–35m* **45** *20–24m, 27–30m, 32–35m, 36m* **71** *22–30m, 35–36m* **72** *29–36m* **73** *18–21m* **104** *18–35m* **105** *32–38m* **106** *1–14m* **107** *1–2m, 24–27m (Darwin and Spencer)* **108** *7–13m* **109** *20–23m, 31–34m* **110** *12–16m/w* they do in some way, or are the result of some cause **111** *3–8m* **120** *29–38m* **124** *33–38m (Pasteur)* **125** *30–39m* **126** *20–28m* **127** *20–26m* **377** *33–36m* **480** *zb*

LEWES, George Henry *The physiology of common life* 2 vols.; Edinburgh & London; William Blackwood; 1860 [Down, vol. 2 only]

287 *5–6m, 6–7m*

LEYBOLD, Federico *Escursion a las Pampas Argentinas* Santiago; Imprenta Nacional; 1873 [Down, I]

LIEBIG, Justus von *Organic chemistry in its applications to agriculture and physiology* ed. Lyon Playfair; London; Taylor & Walton; 1840 [CUL, S Charles Darwin 1841]
h, phy

NB 46; 49; 85; 109; 110; 139; 152; 157; 287; 352; 369 ⟨*w, not CD*⟩
SB ❑β
369 The blood of a man with fair complexion has different odour from dark man

49 *1–3m* **85** *26–30m* **109** *15–18m* **110** *4–8m, 11–15m* **139** *26–30m* **140** *1–7m, 4–8m, 15–24m, 29m* **141** *9–11m* **152** *9–14m, 27–31m* **157** *5–12m* **183** *10w* **3** **287** *7–10m* **352** *17–27m* **369** *26–30m*

LINDEMUTH, Hugo *Vegetative Bastarderzeugung durch Impfung* Berlin; Wiegandt, Hempel & Parey; 1878 [Down, S]

LINDLEY, John *A natural system of botany* 2nd edn; London; Longman, Rees, Orme, Brown, Green & Longman; 1836 [CUL, I Charles Darwin 1840]
af, no, phy, sp, sy

NF Does not Lindley use Diagrams to represent affinities, like the maps of Strickland?
Have any of the great Divisions, the Alliances, only one or two species?
Orders with few species rarer in Vertebrates & insects
NB 163◆ 308 Grafts of Olive & Ash Q

163 *9–11m/10u "flowers | none"* **238** *1–4m* **242** *8–10m* **308** *4u "Von Martius", 7–13m/8u♠/9u♠/10u♠/11–12m*

LINDLEY, John *An outline of the first principles of Botany* London; Longmans; 1830 [CUL, S]
fg, phy, sl

77 *⇑8u "pistillum", wb* The pistillum being a modified leaf **78** *"421"m/u "Hazel-nut"* **79** *wt* Fruit & stone of Plum, Peaches, Cherry not essentially different – kernel in the seed *"424"m/w* (a) *"425"m/u "pericarpium"/a "ovarium"* i.e. formed of lamina of leaf *"427"u "Peach"/w* ∴ also plum cherry *wb* probably seeds rarely selected for themselves No Peas.– **84** *"452"u "Strawberry", "453"m*

LINDLEY, John *School botany and vegetable physiology* new edn; London; Bradbury & Evans; 1856 [Down]

⟨*markings presumed to be by FD*⟩

LINK, Heinrich Friedrich *Die Urwelt und das Alterthum, erläutert durch die Naturkunde* Part 1; Berlin; Ferdinand Dümmler; 1821 [CUL, pre-B]
cc, gd, is

NB p.96 cases of plants apparently brought by Sea
p.do Osbeck saw on Ascencion only 4 plants
102 speculates on change of climate connecting N & S. alpine plants
181 African cattle
(All skimmed)
Inhalt *5w* Read *12m* **96** *9–23m, 31m/u "Sah | Arten"* **102** *9–21m* **181** *15–19m, 21m*

LINNAEUS, Carl *Philosophia botanica* 2nd edn; Vienna; Johan Thomas de Trattern; 1783 [CUL, pre-B]
cc, fg, mn, sp, tm, v

NB p.80 Double flowers natural orders of some which are never double
Maris fundus p87 seeds
Not much satisfactory too brief =
p79 Flowers apetalous from cold
245 Variation in colour of seed
79 *⇑1→* **95** *33–39m* **98** *30–31m* **245** *33–40m*

LINNAEUS, Carl *Systema naturae* Lund; 1735 [Botany School, pre-B]

LINNAEUS, Carl *Systema naturae* 13th edn, ed. J.F. Gmelin, 10 vols.; Lund; 1789–96 [Down, vol. 1 missing?]

LINNAEUS, Carl *Systema vegetabilium* Göttingen; C. Dietrich; 1797 [Down, ED]

LIPPERT, Julius *Die Religionen der Europäischen Culturvölker* Berlin; Theodor Hoffmann; 1881 [Down, I] ℘

LISLE, Edward *Observations in husbandry* 2nd edn, 2 vols.; London; 1757 [Down, pre-B]

⟨*markings presumed to be not by CD*⟩

LOCARD, Arnould *Études sur les variations malacologiques ... du bassin du Rhône* 2 vols.; Lyon; Henri Georg; 1881 [Down, I] ℘

LOCKE, John *An essay concerning human understanding* 2 vols.; London; 1726 [CUL.1900]

vol. 1 contents *"ch. xxi.37/38".X*•◇ **27** *"26"x* **172** *9w*✍ Zeno **272** *⇑3u "Times"/wb* tormos○ **282** *"4"X* **283** *"5"X*✍, *"6"X* **286** *⇑17x* **288** *⇑5x* **290** *1–3x* **294** *10x* **306** *⇑6–3x* **329** *"12"X*✍ **330** *8–10X*✍ **331** *⇑4–3X*✍ **333** *⇑16–15X*✍ **334** *21–24m*✍ **339** *11–13x, ⇑5–4x* **341** *7–8x* **344** *⇑6–5x* **345** *⇑16–13x* **346** *13–14x* **347** *⇑10–8x* **348** *22x* **349** *15x* **350** *20x* **351** *20x* **352** *⇑9–6x* **354** *⇑7–5x*

vol. 2, 145 *⇑4–3x* **257** *17w*✍ Word

LOISELEUR-DESLONGCHAMPS, Jean Louis Auguste *Considérations sur les céréales, et principalement sur les froments* Pairs; Bouchard-Huzard; 1842 [CUL]
cc, dg, fg, he, hy, mhp, oo, sl, sp, t, ta, tm, v, wd

NB Part I
➾ p.12; 32 to 49; 70 – 78; 83 to 107, 8
➾ II: 165; 181; 183; 199; 200 to 205; 208,210; 217–219; 224; 234

SB1 ♦✎
35 Wheat less attended to & modified than garden vegetables – contrast with Dahlia – certainly not a conspicuous variation.
37 Wheat must have been nearly what it was when first cultivated. Q✎
45 M. Dalbret has cultivated 30 years 150–160 vars, & all keep true, except in seed itself– .
49. Wild Oat of Australia, Journal Agricult Soc. Vol 2. Part 2.
70 322 vars.
78 Botanists disagree what to call species
80, 83 thinks wheat impregnated with closed flowers
81. has never seen Hybrids, between his 100–200 vars. sown near each other.
84. Aegyptian vars. differ from French
89 Vilmorin on carrot. *✎
94. Argues if wheat changed by culture, so ought all weeds ♣ quite ignores selection
97 grains from Aegypt as good var & no ●
107. Had it not been for innumerable vars. he wd have thought that what was at first as now
108 contrast variability of wheat & seigle○

SB2 ❐ℜ
Part II.
179, 183 gain of weight in grains when cultivated in France – <u>certain</u> effect of climate. Q✎
200 Tessier on no good from change of seed.
202 disproved by his own experiment & observation explain Tessier by great care of cultivation Change of seed usual practice in France
bad seeds producing equally good plants with good p.216 – rather opposed to principles of selection ✔✎
224 Effect of climate on habit of wheat Q✎
p.29 Mongolian Wheat

12 *23–28m* **43** *6–10m, 15–18m, 30m* **14** *6–9m, 11–14m, 24–26m* **29** *14–20m* **32** *9–14m, 20–24m* **35** *24–26m* **36** *25–31m* **37** *19–20m, 26–28m* **39** *7–13m* **44** *4–13m* **45** *4u "trente ans", 7u "cent|soixante", 17–19m* **46** *19–22m/19u "depuis|ans"* **47** *1–2m* **49** *18–20m* **69** *21–22m* **70** *4–7m* **71** *3–4m/w* & 1 or 2 others **77** *22–27m* **78** *5–7m, 8–12m* **80** *1–8m, 18–19w* Quo *19–22m/20u "à|leur", 24–29m/w* pollen partly shed. *wb* R. Brown says the hairs in stigma cannot admit pollen tubes **81** *1–3m, 14–19m,* *20u "semées|autres"* **82** *10–11m/10u "nombre|tardifs", 21m* **83** *9–12m* **84** *wt/1–5w* In a mass of interlaced roots different nourishment or position be acquired Manure. *7–10m/9u "trop simple"/6–11w* they have not to struggle with other species: sowed in different soil *13–14w* Climate &c ⇑*10–6m* **85** *5–10m, 15–17m* **93** *17–19m* **94** *10–18m, 29–30m, wb* Knows nothing about selection **95** *2–6m* **96** *1–3m/wt* again does not consider culture **97** *10–22m* **98** *9–21m/10–18w* the actual grains quite similar to wheat **100** *14–18m, 20–22m* **102** *14–17m* **107** *20–30m* **108** *1–15m*

Part 2, 165 *4–10m, 12–15m* **181** *4–8m* **183** *1–3m* **199** *23–27m* **200** *18–21m, 30m* **201** *23–26m* **202** *5–11m, 14–17m* **203** *24–29m, wb* I have no doubt that degeneration is a wrong idea.– **205** *6–11m* **208** *3–6m, 8–10m, 13–27m, 28–30m/29–30u "produit|grains"* **209** *1–3m, 22–27m* **210** *4–7m/w* opposed to selection **211** *28–31m* **216** *wt/1–7w* Would be opposed to Principles of Selection, if vars with <u>all</u> bad seeds were chosen. *wt* The size of grain differs much according to what part of ear it comes from.– ← ⟨*from*⟩ **217** *wt* It wd seem that the grains vary extremely without affecting the race: but a new race might be selected – a good race though it may have some poor seeds, yet the quality of the race is inherent in such seed.– *2–3m/*→ **218** *28–31m* **219** *12–14m/w* Peas & Beans! **224** *8–13m/*Q **234** *8–10m/9u "huit|deux", 23–30m*

LOMBARDINI, Luigi *Ricerche sui Cammelli* Pisa; T. Nistri; 1879 [Down, I] ℘

LOUDON, John Claudius (ed.) *An encyclopaedia of plants* London; Longman, Orme, Brown, Green & Longmans; 1841 [CUL]
f, mhp, sp

NB
♦ <u>White</u> Yellow White Bengal quick Bank◗; Quercus olivaeformis (mossy cup) heavy loam V Vol 13 of Gardeners Mag for some trees
more of Dentzia scabra & corymba; Bignonia radicans; Tropaeolum 302,1184; Tendrils 516

6 *"19".x* **12** ⇑*1m/u "In|evergreen"* **16** *"258".x* **18** *"51".w* 1146 *"318"m/w* viscosissima sessilis asceuleus **20** *"319"a/w* purpurea *"321"a/w* plantago **36** *"83".x* **42** *"105".w* 1150 **44** *"115".w* p. 1150 **54** *"953".x* **68** *"206".w* 1 sp. Decand **70** *"1233/1235/1236".w* sp. a. D.C. ⇑*40–35m,* ⇑*32–27m* **71** *"1233/1235/1236".m* **94** *"1620".x* **102** *"305".x* **106** ⇑*4–1m/*

w The yellow berry Holly came true from seed **120** *"1916".x* **126** *"350".w* 1156 *"2031".m, "2041".m* **127** ⇑*23–15m,* ⇑*22u "the crossing",* ⇑*6m* **132** *"369".w* 1156 **134** *"2146/2149".m* **136** *"382".w* p.1158 *"2206".w* end of Nic. **138** *"383".x, "2224/2240".m* **140** *"2260/2266".m, "387".x* **142** *"388".x* **144** *"402".w* 1162 **146** *"413".x* **152** *"439".x* **154** *"440".x* **156** *"450".x* **156** *"2517".m/w* Tomato **158** *"2530".x, "2534".m* **162** *"463".w* 1164 **/166** *"464".x, "2713/2719".m* **167** *"2713/2715".m*✍ **170** *"474".x/w* 1164 *"2789".w* Mr Henfrey **174** *"501".x* **176** *"504".x* **178** *"507".x* **180** *"515".x* **184** *"3018".m/w* fulva **193** ⇑*4–1m*✎ **194** *"574".x* **208** *"615".w* 1170 **232** *"3916/3918/3922/3929/3937".m* **254** *"4286".x/m* **270** *"4597".m,* ⇑*7–1m* **282** *"815".x/m, "4862".x/m* **290** *"843".x* **298** *"868".x* **302** *"875/876".x* **306** *"5180".m* **318** *"901".w* p.1184 *"5449/5450/5461/5463".m* **320** *"904".w* p.1186 **324** *"916".x* **326** *"5586"–"5590".x* **328** *"923/924".x* **358** *"1014".w* 1190 **362** *"1019".w* 1194 **362** *"1027".x* **380** *"1051"–"1052".x* **394** *"1082".x* **396** *"1086".x* **410** *"Order 3".u* **411** *"1148".x* **420** *"1128".m* **422** *"1129".w* damson & cherry *"7056".m* **424** *"1132".w* 1204 **426** *"7093/7099/7101".m,* *⟨text:⟩ 1–3m/w* increase **428** *"1139".w* 1208 **442** *"7464/7467/7473/7477".m,* ⇑*4u "centifolia, damascena.* **443** ⇑*3m/u "300 varieties"* **444** *"7480/7486/7493".m*✍ **446** *"7497/7495".m*✍ **448** *"7500/7502/7509/7510/7512".m*✍*, "7512".w* Dropnaea○ **450** *"7515/7518/7521".m* **454** *"7630/7633".m* **472** *"1203".x* **474** *"1206".x* **479** *10–12m/w* probably in first generation!!! **480** *"1219".x* **482** *"1227".x* **508** *"8395/8399".m* **509** *"8395/8399".m* **514** *"1294".x, "8538".m, "1297".w* p.1226 **515** *"8538".m* **516** *"1299".x* **518** *"1308".x* **520** *"1322.w* 1228 **522** *"1328".x* **526** *"8765".x/m, "8771".m, "8772".md, "8793".m* **527** *"8771".m, "8793".m* **530** *"1355".w* 1078– **554** *"9245"–"9247"m/w* (a) capitata Blistered A. Decandolle thinks all the same. **564** *"1459".x* **572** *"9523".m, "9540".m* **574** *"9546/9565/9568/9575".m* **576** *"9633".m* **582** *"9711/9731/9732/9733/9731/9764".m, "9733".w* sterile **583** *"9731".m* **584** *"9766/9768".m* **586** *"9835/9846".m* **588** ✎ *4–8m, 6u "herbaceum", 9u "cultivated", 10u "nankeen-coloured"* **590** *"9897"–"9921"m/w* Genus Abutile see p.1236 **592** *"1496".w* 1238 **600** *"9970"–"9973".x* **602** *"1511".x* **604** *"1513"–"1519".x, "1521".x, "10030"m/w* open fl *"10031".m/w* open flower **606** *"1522".x, "1524".x,* ↕*w* & Cytisus & Rotinia ● 11 genera true with prop. flowers **614** *"10247"–"10248".m* **615** *"10231/10235".m*✏ **621** ⇑*6–4m/w* Yet the open flowered is specific character **624** *"10435/10449".m* **626** *"10460"–"10462".m* **630** *"10554"–"10558".m/w* D Desmodium **631** ⇑*2–1m/x* **632** *"10560"–"10563".m/w* D *"10566"–"10580".m/w* D *"10600".m/w* D *"10577"m/w*●*, ⟨text:⟩ 5u "during|night"* **633** *"10569".m/u "stem climbing"* **640** *"10787".m* **642** *"10802".m, "10811".m, "10836".m* **656** *"10998".m* **688** *"1683".x* **690** *"1686".x, "1696".x* **692** *"11625".x, "11626".x* **712** *"1741"⟨not CD⟩* **766** *"1934".x* **774** *"1944".x* **786** *"13287"–"13289".x* **796** *"13415/13417/13419/13420".m* **798** *"13433"–"13434".m/x, ⟨text:⟩ 8–11m/9u "vary|soil"/9u "scarcely|tree"* **800** *"13462".m* **802** *wt* P. macrocarpa quick grower *"2011".w* 1270 *"13504".m/w* quickest grower of all **804** *"2013".w* 1274 **806** *wt* Juniperus 848 **808** *"13560/13563/13565/13566".m/w*● **809** ⇑*12–10m* **810** *"13573/13577/13578/13579/13590".m* **814** *"2039".x* **834** *"2066".x* **836** *"2080".x* **838** *"2083".x* **844** *"2114".w* 1278 **854** *"2123"–"2125".m, "14104"m* **855** *"14101"–"14104".m/u±* **864** *"2143".w* 1278 *"14279/14280/14285/14286/14289".m* **865** *"14280/14285".m* **1166** *"2543".x, "17012/17013".x* **1226** *"17592".m* **1228** *"17633".w* 1302 **1272** *"18056"–"18057".m/w* Sir John very handsome **1288** *"3118".m*✏ **1300** *"3652"–"3654".m* **1301** *"357".m/u "Joseph Plant|Staffordshire"* **1307** *"Anagallis".m*

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LOW, David *On the domesticated animals of the British islands* London; Longman, Brown, Green & Longmans; 1845 [CUL]
ad, beh, br, cc, ch, cs, f, gd, he, no, sl, sp, sx, ta, tm, v, wd, y

NB Questions for Mr Low; Introduction; p.36
SB ☐β
LXIII. Supposes the longer any quality in breed comes truer – Believes in ill effect of interbreeding
LXIX States roundly that vars. of sheep & Dogs will keep distinct p671
p.5 & 8 Species of Ibex
12. Syrian Goat same character for 2000 years (no authority) – Horns absent sometimes in one or both sexes (do *⟨ie no authority⟩*) p.14 in India
24 Horns in Female wild sheep often wanting or small
91 Black-faced sheep will not amalgamate by crossing with other Breeds
159 Rye-land sheep will not do.–
188 Remarks how soon a breed in any

county changes with no record of it S✎
239 On various Park cattle of England with coloured vars p.241 p.301
242◆
242 Crouching instincts of young lost immediately – no doubt lost in Chickens, not in Turkeys through tameness of Parents
258 Crosses with Indian Cattle said to be fertile inter se
297 Zetland cattle receive male earlier than any other Breed Q
309 Kerry Cattle white ridge along spine
316 Modern Aberdeenshire Breed hardly true as yet
351 Sheeted colour common to several breeds & strongly inheritable
370 Long-horn with difficulty amalgamated Colling & Bakewell r name Ellman for sheep
387 Short-horn communicate character very easily & yet is an imposed modern Breed
402 Male Boar tends to destroy young to prevent too great increase – so some Rams attack pregnant females!!!
409 Wild not gregarious? (Bechstein) tame are. & even when feral in S. America
411 Tame pigs 3 incisors in each jaw & number not constant
415 Vauban calculation of increase of Pigs (Ch 3)
428 Sus Papuensis – young striped along back
646 Canis anthus of Arabia very like Dogs sculptured on Pyramids Q
650 Half-bred Dingos wd attack Poultry – Low kept them
717 Some of Dholes of India like Greyhounds – Pointers Mute Q
721 Pedigrees of Greyhound attended to like Races
a Poor Book – not to be trusted.

v *14–18m* **vi** *15–18m, 27–29m* **vii** *21–27m* **viii** *15–16m* **lii** *33–36m* **liii** *5–12m, 14–16m* **liv** *4–9m, 27–29m, 31–35m* **lv** *26–33m* **lvi** *34–35m, wb* This I think, must be a specific character & not direct effect of temperature **lvii** *7–22m, 27–28m, 32–33m* **lviii** *19–24m, 28–34m* **lx** *16–21m* **lxi** *8–9m, 13–15m* **lxii** *25–27m, 34–36m* **lxiii** *1–7m, 8u "characters | supposed", 9–16m, 20–23m, 32–36m* **lxiv** *11–14m* **lxv** *20–24m, 30–34m* **lxvi** *17–22m* **lxviii** *26–28m* **lxix** *12–16m, 13–14m, 16–18m, 16–17m, 28–30m, 31–34m, 35–36m* **lxx** *1–10m* **lxxi** *33–35m* **lxxii** *19m/u "13 | 18"* **lxxiii** *20–21m/21u "one | are"* **lxxiv** *19–21m/20u "were | young"* **xcviii** *1–7m, 16–19m, 20–23m* **c** *24–26m* **ci** *2m* **ciii** *7–10m, 7–9m* **cvii** *18–21m* **cxi** *25–28m* **cxii** *16–20m* **cxiv** *17–20m, 34–36m* **cxv** *1m* **1** *5–6m* **2** *31–36m* **3** *2–4m, 6–8m, 12–17m* **8** *19–23m* **11** *17–28m, 35–36m* **12** *3–7m, 19–20m* **14** *10–11u "sometimes | ears"* **15** *4–6m, 31–33m* **24** *15u "horns | small"* **25** *8–10m, 12u "in | often", 24–27m* **27** *1–5m, 5–6m, 13–16m* **32** *27–28m, 29–30m* **33** *30–32m/27–34w* There must be 100s of species caught, not probable for trouble *wb* We know how apt savage natures are strike on same plans & therefore domestication wd probably take place to great extent – taming wild animals & birds common t ◗t ✂ **34** *4–7m, 31–33m* **35** *28–31m, 33–34m, 35–36m* **36** *7–8m, 17–18m/18u "character", 26–27m, 28u "hair", 32–34m* **37** *16–18m, 26–28m, 35–36m* **38** *18–22m* **39** *3–5m, 10–13m, 18–19m* **40** *28–31m, 35–36m* **58** *28–30m* **59** *27–28m* **60** *4–5m* **62** *22–23m* **63** *22–24m* **65** *5–7m, 25–29m, 31–36m* **66** *8–11m* **68** *1–2m, 10–11m, 13m* **69** *wb* comparable to the trifling characters distinguishing geographical representation **73** *19–22m, 26–27m, 28–29m* **75** *22–25m* **81** *10–11m* **82** *3–5m, 24–26m* **83** *6–7m, 14–17m* **84** *30–33m* **85** *27–29m, 32–35m* **86** *1–4m, 14–18m* **87** *1–3m, 22–23m* **91** *17–18m* **93** *31–32m* **94** *1–3m, 16–17m/u "Their | quarter", 31m, 34m* **113** *17–18m, 27–28m* **114** *31–32m* **115** *34–36m* **116** *6–7m* **117** *27–35m* **118** *17–20m, 23–26m, 31–32m* **120** *5–7m/5u "outline of"* **121** *12–13m, 35–36m* **123** *6–8m, 33–36m* **124** *30–33m* **125** *9–11m* **126** *5m/u "4000", 10–11m* **133** *29–33m* **134** *12–14m, 24–26m* **136** *1–6m, 10–12m, 22–23m, 27–28m, 34–35m* **137** *12–13m* **138** *31–32u "The | Sheep", 32–35m/32–33u "know | are"* **141** *26–31m* **143** *20–23m, 25–28m* **145** *15–20m* **147** *32–36m* **148** *13–16m* **150** *4–6m* **151** *27–30m* **155** *13–16m, 32–33m* **158** *15–19m* **159** *2–5m* **163** *13–21m, 28–31m* **164** *13–14m* **170** *7–9m, 11–14m* **173** *8–12m* **174** *4–9m, 18u "50 | lb."/18–24w* Does not P King say 65?!!! at first in Australia **175** *1–5m/w* must be due to external agents **177** *2–6m, 19–21m* **179** *11–12m* **181** *13–16m, 29–30m* **184** *12–14m, 24–26m* **185** *wt* Crossing evidently produces rapid effects & has done much more than selection.– *4–6m/x* **188** *18–21m* **192** *2–4m* **193** *1–2m, 11–13m, 29–30m* **194** *25–30m* **195** *31–35m* **196** *1–6m* **197** *27–36m* **198** *2–4m* **199** *31–36m* **209** *22m* **217** *35–36m* **231** *7–8m, 28–32m/30w* (a) *wb* (a) No such great change has been effected in reclaiming the common Ox of Europe V. further on.– **233** *33–41m* **234** *34–36m* **236** *3–5m* **238** *6–9m, 12–14m, 15–27w* Compared to Falklands! *30–31m* **239** *1–2u "existed | immemorial", 3–4m, 13–17m, 31–36m* **241** *18–19w* like Pigeons *19–22m, 23–26m* **242** *wt/1–7w* instinct by young animal lost, & it must be lost by change in instincts in old animal. by the old ones not depositing their young. *3–7m/4–5u↔, 8–12m* **256** *6–8m, 25–30m* **257** *2–5m* **258** *14–16m* **259** *3–5m* **261** *19–22m* **264** *28–30m* **265** *9–11m, 24–28m, 29–33m* **266** *9–11m, 20–22m, 23–25m* **296** *28–30m, 30–31m* **297** *11–12m/12u "Scandinavian", 13m, 21–24m* **299** *25–27m, 29–36m* **300** *15–18m, 29–31m* **301** *7–10m, 30–31m* **304** *3–4m, 32–33m* **306** *16–18m* **307** *3–6m/*Q *10–12m* **308** *20–25m* **309** *14–15m/14u "white", 30–32m* **310** *22–26m, 27–30m* **316** *25–36m* **318** *28m* **319** *26–27m* **321** *27–30m* **322** *3–7m* **324** *22–24m* **334** *7–9m* **339** *22–24m* **344** *3–6m* **345** *24m* **346** *25–27m* **349** *27–29m, 31–33m* **350** *29–31m* **351** *3–7m, 14–16m* **353** *28–31m* **357** *19–20m* **358** *19–22m* **359** *15–17m, 22–24m, 29–31m* **362** *17–21m* **363** *2–4m, 7–11m/10u "late | century", 17–20m/17x✎/18u "1769", 31–32m, 32–34m* **364** *10–15m, 16–19m/18u "not"* **365** *10–11m, 13–15m* **366** *8–10m, 11–12u "very short", 15–16m, 21–22u↔* **368** *4–5m/*Q *8–10m, 24–27m* **369** *1–2m, 4m, 8–9m, 11m, 12–15m, 16–17m, 20–21m, 22–24m, 34–35m* **370** *13–15m* **371** *3u "goodly | horns"* **372** *6m, 14–15m, 30–34m, 35–36m* **373** *6–7m, 35–36m* **375** *1–2m, 4–6m* **376** *9–12m, 27–29m, 30–34m/32w* (a) **377** *1–2m/1–8w* (a) because cannot see within.– Selection cannot regulate position of fat.– *32–34m* **379** *26–31m, 32–34m* **380** *34–36m* **381** *5–6m, 23–25m (Colling)/w* I ought to use his name *28u "1770"* **382** *3u↔, 6–10m, 17–20m, 30m, 34–36m* **383** *25u "crosses", 26u "Scotch | Galloway"* **384** *1–5m, 6–8m* **385** *13w* Cows 17= **387** *3–5m/*Q *7–9m, 14–15m, 27–29m, 34–35m* **389** *7–8m* **393** *34m* **394** *11–13m/8–16w* such selection cd never apply to wild animals, as every parent must be adapted to same conditions **396** *19–21m* **397** *7–8m, 14–16!??/15–16u "is | Africa"* **401** *20–24m* **402** *20–21m, 22–24m, 34–35m/35u "prevent | great"* **408** *24–26m, 32–34m* **409** *4–5m, 10–12m, 19–22m, 25–29m, 31m* **410** *3–5m, 13–16m* **411** *4–6m, 4–5m, 10m* **415** *8–10m, 15–22m, 35–36m, wb* What is average age of Elephants? **421** *8–10m* **422** *18–19m* **424** *20–21m, 22–25m, 26–27m* **426** *12m* **428** *10–12m, 28–30m* **429** *3–7m* **431** *14–18m* **433** *6–10m, 12–14m, 25–27m* **438** *24u "Asses", 27–28m* **441** *31–34m* **445** *27u↔, 29–31m, 33–36m* **453** *36m* **457** *8–14m* **468** *8–14m/11–12u "hardy | enduring"/9–16w* Change of character from external conditions. **469** *5–7m, 15–18m* **470** *21–25m* **513** *9–13m, 31–34m, 35–36m* **514** *30–32m* **516** *5–6m/6u "piebald"* **517** *9–11m* **523** *1–4m, 21–23m, 28–31m* **524** *23–25m*◆ **527** *12u "King Herod", 13–14*Q *15–16m, 25–26w* Darley Arabian *30u "Eclipse"* **528** *15–16m, 30–33m* **529** *20–21*Q *22u "334 winners"/22–23m, 26–27m* **530** *20–22m* **532** *1–3m, 7–10m/"..."/*Q *20–21m, 27m, 31–33m* **533** *1–2m, 9–11m* **544** *17–18m, 20–22m* **546** *7–10m, 10–12"..."/m, 19–22"..."/m/*Q **584** *1–5m* **588** *1–3m* **598** *22–26m, 27–29m, 35–36m* **602** *30–31m* **606** *12–17m* **607** *8–10m, 11–14m* **608** *21–23m* **617** *8–9m, 12–14m* **619** *2m, 3–5m, 8m, 17–21m* **625** *13–17m* **628** *18–28m* **641** *1–4m, 18–20m, 21–24m, 27–29m* **643** *18–21m, 32–33m* **646** *29–30m, 32–35m* **649** *14–16m* **650** *3–5m, 3–4m, 34–37m* **653** *28–32m* **655** *1–5m* **656** *30–31m, 35–36m* **657** *1–4m, 5–10m, 31–36m* **658** *5–7m* **660** *13–19m* **663** *3–7m* **664** *13–17m, 27–28m/28u "Malta | dog"* **665** *5–15m, 16–25m, 26–32m* **666** *6–10m, 22–27m/21–31w* one cross, without fertility inter se, wd produce effect.– good – **671** *20–21m/21u "race" 22–24m, 28–29m* **672** *24–26m* **673** *12–15m, 22–26m* **674** *10–11m, 17–18m, 26–28m, 30–31m* **677** *7–9m* **678** *27–30m* **706** *1–9m, 34–36m* **711** *21–25m* **716** *6–9m* **717** *30–36m* **718** *32–36m* **719** *10–15m* **721** *14–17m/*Q*/15u "pedigrees of", 22–25m, 28–31m* **723** *19–21m, 32–33m* **724** *1–3m* **730** *16–19m/8–26w* Sulivan's case of other dogs doing so at Falkland *21–24m/27–28m/30–36m/22–35w* adaptation, striking case of **731** *3–7m, 10–12m* **735** *22–23m* **736** *4–6m* **740** *32–35m* **741** *4–6m, 18–20m* **743** *1–2m, 32–34m* **744** *15–18m* **745** *8m/u "webbed"* **746** *4m/u "His | webbed"* **747** *16–18m* **749** *15–18m, 16–19m, 24–27m, 28–31m* **751** *25–32m*

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beh

NB p.18 Flight of insects a form of crawling
14 *10–15m, 17u "thirty times", 23–27m* **15** *1–7m* **18** *27–30m* **34** *5–6m*

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ct, ds, em, h, rd, v, t

NB Rudiments & Law of Variation; xii Rudiments; xiv Doubling of embryo in single Blastoderm; xvii "soi pour soi"; xviii; Nothing for Descent of Man
xii *16–20m, 36–37m* **xiii** *24–26m* **xiv** *24–27m (Milne-Edwards)* **xv** 20–22m **xvii** *3–6m* **18** *17–22m*

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beh, cs, ds, h, he, ig, in, rd, t, tm

NB1 All concerning Descent of Man
✏ 119 No Bird or Reptile comes between Amphibian & Mammals – good
✏ 141 Flies know plaintive cry of captured fly
NB2 p41; 43
accounts for good from crossing by giving plasticity. – 44
55; 57; 58 Rudiment; Pangenesis 62 or 65
All marked to end of Book

41 *17–21m/w* if of use to the individual *27m* **42** *10–12m/11w* Yes **43** *2–6m, 25–28m* **44** *10–15m* **55** *8–15m* **57** *1–8m, 20–28m* **58** *17–23m/w* No in rudiment of pistil **62** *5–8m, 8–14m* **63** *15–19m* **65** *14–17m/w* because they must collect the earliest stage **72** *21–27m/21–23w* Sir J. Paget **75** *3–6m* **76** *11–18m/!!/↕w* It is incredible to me so fine a balance. If so American ought not to be more naked than European – <u>Brain not so much developed</u> **104** *17–28m* **105** *7–15m, 19–22m* **115** *21–28m* **118** *22–27m* **119** *22–28m (Parker)* **120** *12–18m* **123** *8–13m/9u "homoplastic"* **141** *23–27m* **144** *23–28m (Bain)*

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LUBBOCK, John *Addresses, political and educational* London; Macmillan & Co.; 1879 [Down, I]

LUBBOCK, John *Ants, bees, and wasps* 4th edn; London; Kegan Paul, Trench & Co.; 1882 [Down]

LUBBOCK, John *Monograph of the Collembola and Thysanura* London; The Ray Society; 1873 [Down]

NB O/
℘

LUBBOCK, John *The origin of civilisation and the primitive condition of man* London; Longmans, Green & Co.; 1870 [CUL]
beh, h, t, y

NB p355 Savages & Men cry or weep only slight occasionly copiously – Q Puzzled savage frowning
p277 signs of affirmation.
42 *7–10m, 31–32m* **48** *19–22m* **50** *17–20m/w* & so forth **52** *23–29m* **55** *13–16m* **60** *16–19m, 20u "almost", 25–27m/25–26u "communal marriage"* **64** *8–11m, 14–18m/1–18w* It is very odd that children shd not know their mother. or rather conversely. **66** *28–31m* **67** *wt* (a) other explanation of closer connection of child to mother *11a "M'Lennan"* & Morgan○ (a) *11–17m/w* says so, but am not convinced **69** *11–16m, 24–26m* **70** *7–9m, 12–14m, 23–28m* **72** *11–14m, 19–21m* **76** *20u "Malay"* **77** *1–2m* **79** *28u "Fijians", 30–31m* **86** *1–5m* **87** *8–11m* **88** *19–27m/6–26w* This all looks like communal marriage **93** *27–31m* **94** *1–2m/wt/1–4w* What is the evidence *5–7m* **99** *17–20m/w* or rather of many ● places **100** *8–9m, 10–11m, 28–32m* **101** *29–32m* **104** *3m, 13–18w* because tribe of utmost importance **105** *2–5m* **108** *24–28m* **119** *9–22m* **128** *10–24m* **171** *25–30m* **221** *30–34m* **259** *2u "friends"/4u "words | justice"/2–4w* but reality **260** *28–31m* **261** *26–29m* **263** *2–6m, 26–28m* **265** *30–32m* **273** *34m* **274** *wb* I think I need only refer to L on wickedness of savages & Primitives *wb* Moral sense citing the term – the latest acquisition is that which impels a Man to certain actions each or wholly or in part not counting to his own ♣ advantage, or plans, & which reports○ have under the term ⟨*rest* ◊⟩ **277** *3–8m* **278** *14–27m* **321** *7–8u "Among | Saxons", 11–15m/*Q *21c/w¢* **355** *4–7m/6u "knit | brows", 19–38m/29–31m*

LUBBOCK, John *On the origin and metamorphoses of insects* London; Macmillan & Co.; 1874 [CUL]
ad, ds, em, ig, sy, tm, ts

NB ◆ Modern Classification 20 (Error) Termes – F. Müller; 66; 73; 81
SB ✍
p66 – Similarity & dissimilarity of Larvae, relating to mature state – Medusae the most wonderful case.
p73 on difficulty of believing that a suctorial mouth cd be developed into a mandibulate one, & vice versâ; both descended from intermediate form.
p82 summary on metamorphoses "adaptional & nonadaptational"

66 *3–25m* **73** *12–25m* **81** *3–5m* **86** *11–20m*

LUBBOCK, John *On the ova and pseudova of insects* (extract); 1858 [Down]

LUBBOCK, John *Prehistoric times* London; Williams & Norgate; 1865 [CUL, I]
beh

NB ⟨*not CD*⟩
337 *14–22m, 28–30m* **354** *18–20m (Crawfurd)* **451** *18–24m* **473** *9–12m/w* Rengger *25m* **474** *1–3m, 29–32m* **475** *16–21m* **476** *14–18m, 20–*

29m **477** *23–30m/w* Castes of India **478** *1–5m* **479** *13–19m* **480** *20–26m (Wallace)*

LUBBOCK, John *Prehistoric times* 2nd edn; London; Williams & Norgate; 1869 [CUL, I, S]
beh, gd, h, tm, y

NB 417 Advance in Savages
562, 563 → 437 Power of counting by Savages No abstract terms
◆ 471 females noses flattened
◆ 508 size of underlip standard of beauty (?)
◆ 507 Amers. shape of Head very deformed
539; 543; 545 independent inventions showing ● property of Savages
552 Kissing not general
553, 554 – odd mores & fashion
558 – Mental development of Child, near like
563 – 564– Religion
569 – Witchcraft
– 571 – Cloud of evil hangs over savages
animals using weapons – 572
574 – State of Race when they first spread over Earth

399 *1–3m* **402** *14–16m* **405** *5–7m, 11–13m* **417** *20–31m* **437** *15–27m* **471** *25–27m* **506** *16–17m* **516** *27–28m* **539** *30–34m* **542** *20–31m* **543** *11–20m* **545** *2–7m* **552** *7–12m, 21–25m* **553** *5–9m, 11–17m, 17–20m, 33–34m* **554** *4–10m, 11–16m, 25–27m, 28–29m* **558** *22–31m* **562** *6–8m, 23–26m* **563** *7–9m, 16–20m* **565** *1–11m* **569** *17–20m* **571** *wt* one must consider their evidence or their dread fully to appreciate the important benefit of knowledge & science. *4–6m/5w* (a) **572** *10–14m* **574** *wt* when they spread over the earth *2–6m/2u "ignorant | pottery", 5u "They | arrows", 7u "boats"/8u "possible character", 1–19w*●, *15–25w*●, *18–20"...", 30–32"..."/m/w* He adds *21..."/w* & Fire But he admits that from why ● **575** *13–20m/17u, 26–34m*

LUBBOCK, John *Scientific lectures* London; Macmillan & Co.; 1879 [Down, I]

LUCAE, Johann Christian Gustav *Der Fuchs-Affe und das Faulthier* Frankfurt am Main; Mahlau & Waldschmidt; 1882 [Down]
℘

LUCAE, Johann Christian *Zur Statik und Mechanik der Quadrupeden* Frankfurt am Main; Mahlau & Waldschmidt; 1881 [Down]

LUCAS, Prosper *Traité philosophique et physiologique de l'hérédité naturelle* 2 vols.; Paris; J.B. Baillière; 1847 [CUL]

beh, br, cc, che, cs, ct, ds, em, f, fg, gd, he, hy, ig, in, mn, no, or, pat, phy, sl, sp, spo, sx, sy, t, ta, ti, tm, ud, v, wd, y

vol. 1 NB ✍ ◆✏
Prof. Piorry Not ancient, probably Medical work; I think French. on Hereditary diseases. Enquire prior.–

title page *⇑8m (Piorry), wb¢¢* **xxiii** *10–16m* **114** *14–20m* **127** *3–11m* **129** *17m/u "neuvième | naissance", 32m* **130** *3u "enfants d'Edward"* **149** *4–7m (Gall)* **175** *18–32w* period of variation different according to different authors. Cause & time of appearance may be very different **176** *17–20m/17–32w* variation of hybrids inter se wd make one believe in this distinction of parent acting on germ.– **177** *8–13m* **179** *18–24m* **180** *12–16m* **181** *13–20m/w* inheritance cannot be cause of variation has nothing to do with it.– **183** *3–12m/4?/10–11?* **184** *27–29m/29u "un | spontané"* **185** *4–9m, 19–22m/19–32w/wb* Difference of <u>twins</u> looks against every theory. specially of germs. Action of parent different on germs Twins in Plants Extra uterin & inter uter Why one take more after grandfather than other Entire mystery, can say only a law **187** *20–22m, 25–26m/26u "sponanéité"* **195** *2–5m/!* **196** *3–5m, ⇑3m/wb* What. Not cited before I have looked all **198** *5–11m, 16–19m* **199** *3–4m* **203** *15–16m* **211** *20–24m* **212** *13–20m/w* colours not mixing **215** *14–17w* 216 couple 205 true 11 false **217** *6–8m/w* species not good to give one particular. *18–20m* **221** *22–25m/25u "moindres", 27–28m* **222** *19–21m, 32m* **223** *10–13m/11u "soixante ans"/13u "trente ans"* **244** *17–19w* constitutional inherited peculiarities *20–22m* **245** *wt* These are necessarily inherited at same time *1–4m, 5–7m/5u "précosité", 8u "développement tardif", 10u "puberté"* **291** *23–27m* **305** *13–15m* **313** *2–6m* **314** *4–8m/5–17w* my selection view not applicable to all melanism. By variation & by crossing in Birds & squirrels **325** *18m* **326** *3–4m*✎, *13–23w* 1 2 3 <u>4/8</u> 4 2/6 of children *16–22w* How very hereditary these six fingers *26–28m/27u "du | immémoriale"* **327** *1–3m/2x*✎ **333** *18–27m* **337** *1–11m* **380** *⇑1m/wb* Hybrid Rhododendrons **388** *1–7m* **392** *8–10m* **393** *18–26m, 27–28m* **395** *27m* **396** *14–17m* **399** *20–21m/w* same age *22→*✎, *⇑6→* **400** *2–6m, 18–19u "trente | fille", 19–20u "dix-neuf | ans", 22–23m/w* Earlier *26u "treize", 27u "onzième année"* **401** *3u "onze ans"* **428** *1–14m* **429** *7–10m* **430** *14u "nous | notre"/15–21m/15u "qui | congéniales"* **463** *7–18m* **577** *4–13m/9–10u "même | enfants"* **584** *6–14m* **598** *18–21m* **600**

24–28m **602** *13–15m* **605** *28–29m* **614** *22–25m (Maupertuis)* **625** *19m* **626** *21–22m*

vol. 2 NB ✎◊ On sexes p 159 – 163
SB1
393; 399; 400; 428 deaf Cats; 430; 463; 577; 584 Music; 598; 600; 602; 605 good
⟨*over*⟩ Tom 1
p. 114; 127; 129; 149; 175, 180–5 used; 187; 195; 196; 203; 211, 12; 221; 244; 291; 305; 313, 14; 326 – many fingers; 333; 337; 380; 388
I must order Piorry
◆ Probably offspring never absolutely like parent, in mind or body. at least in Man.– Whatever causes this difference is exaggerated in varieties. if we look at similarity as the powerfulness○ of generation
Allude to the many opinions
◆ p.175 I shd allude to uncertainty of period, as complicating our ignorance of causes of variation.
Think of difference in Twins. p.185 Good
⟨*over*⟩
◆ In inheritance the only point which concerns us New structures being inherited or not.
One might fancy that in Ass crossed with Horse there is a greater potency of race, & that this potency is transmitted more by male in this case than in others. Niata cow transmits with more force than Bull – Pouter Cock & Hen equally.
SB2 ❑β
Tom I H✎ Means Inheritance
114 Twins with circulation in common very different dispositions
129 Lambert, horny excresses given to children H✎
149 Difference in young pure wolves of same litter ♣ in disposition
175–185 on period at which variation caused (I believe Q)
195 ancient law of the beautiful marrying – in Crete
196 on likenesses in children coming on at corresponding age to parent (H)✎
211 Colours not mixing in species ⟨*u*✎⟩ & varieties X✎ Q
222 Hereditary Hernia not at same age H✎
244 corresponding periods of inheritance H✎; ✍ connected with periods of life dentition, puberty.
305 Adams thought deformations by arrest were not hereditary H✎
326 Polydactylism very heredetary – my view everything very heredetary, but not rendered latent H✎
333, 337 On Double monsters, whether really double X✎
388 Taste for Barley changed by domestication in Pig. Sir F. ● wild Pigs wd not eat swill
H✎ Curious case of Hereditariness in eye in Lens moving & causing blindness (Ch. 8)
399 same age blindness supervening H✎
577 in Cretins comes on in infants – calls it exceptional H✎
428 Blind◆ Deaf Cats & White – Adams in Cyclop of Practical Medicn Vol 2. p.418
463 Blending instincts by crossing vars & species
584 Musician heredetary H✎
598 In Hybrid Wolves & Dogs, likeness to wolf in all the males and conversely H✎ S✎
600 Hereditary sleeping on back & crossing legs H✎
605 Good summing sentence about Hereditariness.– H✎
SB3 ❑ℜ
439; 445; 455, 7; 471, 2, 5, 8; 483, 4; 501; 567; 571; 574, 7; 580; 592, 5; 605; 611; 627
678 same age → summary on this head.; 691 do; 700 do; 702 do; 713 do; 715 do; 748 do; 759 do; 849 age; 850 age; 852–age
858; 891; 892 very important on crossing obliterating individual character; 896; 904 2
129; 135, 7 – 140 – 145; 156
157 on latent characters, in respect to reversion
158 – 165 – good.
172–5
180 comparison of Hybrid & Mongrels "Race-Hybrids" – "Species-Hybrids"
185; 190 – Books important; 192
198, 212 to 218 Crosses of Zebra & Ass.
229; 240; 253; 296; 299; 301; 307; 310; 315; 334; 347; 382, 4
I must express things diffuse & with ♣ a most wearisome pretence to formulas.
⟨*over*⟩
2 children have some peculiarity which no ♣ ancestor had –
◆
So Porcupine & Echidna Orchis & Asclepias Explanation same, in some degree similar constitution acted on same causes, but in latter case selection comes into play very importantly – Both, however, derived from modified pair – Turned up snouts in Crocodile, Goldfish & Bull-dogs.
But now in bars on Pigeons & Asses legs & Horse back no selection. It comes to this can we believe external agencies cd

produce the bars; I do not –
That there is real & not mere external potency of race; Gaertner I think shows by rapidity of conversion into another form.–
⟨*over*⟩ Tom 2
See Back of Page
p.4; p8; 33
40 The most inexplicable case wd be an additional finger reappearing a tendency to form it somehow checked.– p48 Yes there are cases.– 45 So masking theory must be given up.
54, 58 effect of ant-copulation
75, 78 on action of Sexes, contradictory.
82, 85, 86, (88 opposed to my theory of colour & constitution.)
93, 94
103–5 about which sex has greater influence
109
111, 12 Preponderance of race in different sexes & p120
116 Book Huzard
124
SB4 ❑β ⟨*2 sheets*⟩
✎ T. 2
8. Male giving certain parts p.75 Summary on do. 78 do. 82 ⟨*u*✎⟩
33 on similarity in children distinct from inheritance H✎
40 Atavism, as in six-children: H✎ Predisposition – may say latent; not marked., "Ruckslag" ⟨*ie Rückschlag*⟩
58 Cases like Ld Moretons Q
X✏ 85 Colour & character going together 88
93, 94 shows colour & constitution do not go together
103 X✎ Whether male or female parent preponderate in general in a cross, to p.105. Much diversity ⟨*u*✎⟩ of opinion
109 X✎ He thinks they have equal power – p.111. in some [instances] male most, in some females – p112 Q examples of preponderance of race 114 so with individuals 120 Potency of Race in one sex p 124 Sexuality in itself nothing (good summary)
129 Differences in Monoicous & Dioicous flowers Ch. 6 Sexual selection (Probably much correlation of growth
135 Sexuality goes for nothing in crosses
137 Sexes transmit commonly to own sexes – 140 in many cases reversed H✎ S✎
158 Differences in sexes throughout animal Kingdom (look at under Ch. 6)
165 Excellent case of same Peculiarities attached to either males or females S✎ (is it due to sex tendency to transmit to own sex? H✎

171 Father of Polydactilism &c showing how does not go by sexes. H✎
X✎ 180 Q Comparison of Hybrids & Mongrels – Upset to Geoffroy Rules to 190 – 192 Summary on. D Lucas firm believer in Species
185 case of non-reciprocity in Mammals Q
194 Subdivides resemblance with groups like Gaertner (Compare)
198 Cases of parts taking after one parent (♦ Give case of tail taking after Male in Triple cross
217, 218 accounts for all new Characters by Combination, forgets sports in birds – This is in fact same sort of theory, as that which accounts for all races by crossing
229 Melange takes place only where parts are like.
240 Hare & Rabbit good case of difficult union in close species. Buffalo & Cow Cow (?)
253 His law of election & mixture & combination
296 On animals, as Bull & Stallion, having much more choice than wd think. Ch 6 (✎
301 Q On Old Race preponderating in cross
307 Hybrid of Fowl & Pheasant, fertile Q
308 On "Reduction" Q of races; 310 Effects of Q climate on reduction p315 The rate of reduction as shown by Gaertner shows that there is real potency in 1/2 breeds
355 on various combinations of colours
347 Knox & Weber think both sexes present in embryo (Knox & Weber) Ch. 8 Opposed by gt authors p382
445 Classification of variation with congenital – spontaneous & immediate; never alludes to effect of causes on ovules & spermatozoa
483 Dumb Dogs learning to Bark in England
484 ♦ Hereditary Handwriting Comptes Rendus H✎
501 ♦ Effects of accidents heredetary H✎
5♦
⟨over⟩
✎ Tom 2
567 Hereditariness at corresponding periods H✎
571 Good Remarks on little distinction between inheritance of predisposition & disease itself H✎
576 List of Hereditary diseases H✎
580 Diseases appear, when inherited, under insufficient causes (Ch. 6 when showing how inheritance aids primary causes of variation)
592 Disease to be inherited need not appear early, any more than character in imago H✎
595 Inherited Disease not very rarely appears in infant H✎

605 Inheritance from parent after an abnormal state has appeared. H✎ X✎
611 Doubts any great distinction of inheritance of acute & Chronic diseases
627 Veterinaries especially believe in heredetary diseases (short♦ quicker breeders) H✎
Hereditary cases at same age (or nearly) or rather young 678 good same disease at different age p. 691 700 702 (713 715) 748 759 H✎
♦ Hereditary cases at very different ages
848 Summary on Hereditariness at same age to 852 H✎
858 Local diseases inherited H✎
891 Noble Families endure barely 300 years
892 Owing to marriages, character of one ♣ single individual is soon lost H✎ [Lateral characters on both sides different case for Crossing] C.D
904 Summary on ill effects of Breeding in & in. (✎

4 *23–26m* **7** *15–16m*♦ **8** *3–6m* **33** *7–10m/3–14w* Bears on Reversion as Sir H. Holland.– What brings them, but something in common similarity acted on. **40** *14–16m (Burdach), 15u "prédisposition"* **45** *1u "Ruckschlag", wt* Reversion better than atavism throwing back *2–5m* **48** *33m* **54** *25u↔, 27–30m* **58** *1–10m (Van Helmont & Haller)* **59** *15–17m* **75** *4–10w* great diversities in relation to action of Sexes **78** *26–32m* **79** *26–29m* **82** *19–32m* **83** *24–26m* **85** *15m/u "Da Gama Machado", 20–33m/21u "coloration|caractère"* **86** *24–27m, 25–26u "transmission|couleur", 26–27u "du tempérament"* **88** *6–10m, 28–32m/w/wb* My point is only whether <u>generally</u>.– & only relation of colour & diseases of hot countries That colour & withstanding climate are connected all organisms show – No it may be effect of light **93** *15a "Le"/m/u↔/w* Mental I think **94** *2–6m, 28–29u "penchants|facultés"* **95** *18–22m* **103** *9–12m* **104** *13–16w* diverse opinions *26–27m* **105** *13m, 23–24m* **109** *5–8m* **111** *30–32m* **112** *15–26m/17–18*Q*/18–23w* preponderance of one race over another with a 3d race **113** *wt* Austrian face must, I shd think go with father.– *3–6m/w* preponderance of race according to sex *13u "mongole"/13–19w* preponderance when either sex – like Pouters & Fan-Tails. **114** *5–11m/4–25w* crosses of individuals like races & like species – Same conclusions as Gaertner – with the difference that the sex variously determines the preponderance **116** *25–26m, 31–32m (Huzard)* **120** *12–16m/w* case of potency of race in sex **124** *16–21m/16–19u±, 28–32m/31w* a *wb* ie an individual, either male or female can preponderate, & so he thinks it is (I think) in species; but surely he must allow one species or race alone preponderates **125** *2u "Cette|des", 16–18m, 16wτ, 26–31u±/28w* (a) *wb*♦ In fact every animal is bisexual **126** *wb* Sexual characters generally confounded with other characters **129** *5–10w* Differences in monoicous flowers *23–29w* great differences in dioicous flowers *31–32m* **130** *28–31m* **135** *25–27m* **136** *9–11m* **137** *9–12m/w*♦ was the 1st Pouter a male? *11–14u±, 22u "une|ces", 23u "métamorphose", 24u "épidermiques", 25u "polydactilie"* **138** *6–16m, 7u "chromatopseudopsie"* **140** *22–23m, 25u "dire|père"/w* in many cases **145** *7–10m/8w*♦ in-version *12–14m, 15u↔* **156** *20–24m, wb* It is clear that characters sometimes go with sex – as sometimes polydactylism &c – Pouting & Wattle, & so if useful to one sex can be selected & returned – In fact both sexes have these characters but not displayed **157** *wb* The latent characters as shown in reversion to ancestors are illuminated by cases of females having them in potentiality *7–10m* **158** *wt* Differences between males & females *4–29m*♦✎ **159** *2–9m/m✎/5u "la Raie"/w* Fish *9u "Chien|que"/w* M **161** *2m/u "la huppe", 3u "voile", 4–5m/5u "gutturaux", 8m/8–9u "épines|latérales", 15u "crête|Condor", 16u "aigrette|espèces", 17–21m/ 19–20u "barbe|Élan"* **162** ✎ *4–6m/4u "odorifères"* **163** ✎ *12–21m/13–18u±/13–15w*✏, *u*✎ <u>Badger Otter & Lynx</u> ⇑*2m/w*✏, *u*✎ <u>Monkey</u> **164** *wb* all the foregoing ♣ ie of male sexual character being transmitted to males alone is wrong, as shown by sterile females – but it is latent in female **165** *wt* Looking at everything which can be transmitted being transmitted, in a child What a number of latent principles, from parents & grandparents – there may be a latent tendency to produce long or very short tails, & by no means necessarily an intermediate tail *11–12u↔/?/11–15w* Mem. Polydactylism sometimes goes in males & sometimes in females, I think. → *16–20m/ 18u "masculin|mâles", 21–23u↔, 29–31m, 30u "affecté|femmes"/22–33w* hence, I shd think cannot be called an "annexed" character. or only accidentally annexed. **166** *5–9m, 10–12m, 16–17u "exclusivement|auquel"* **167** *4u "occasion", 5u "elle|cause"* **172** *4–5w* Table on Back *9m/u "intermittent"/?* **173** *1–4m* **175** *9–14m/ 10–11w* I doubt this **176** *25–27m*♦ **180** *5–8m/5u "rarement|moyenne"/6–7w* just reverse *10u "d'autres règles", 15u "intermédiaire", 19–21m/*

w just reverse **181** *5–7m/w* Hence preponderant **183** *27–31m* **184** *2–4m, 7–16m, 19–21m/w*♦ ass prevails – one here *19–21m/w* odd go back? domesticated ⇑*12–8m*/⇑*11u "Chien* | *Boue"/wb* This variability of hybrids is independent of domesticity **185** *16–20m,* ⇑*6u*↔*/w* Q ⇑*7–5m/w* Reference &c next Page *wb* case of non-reciprocity **186** *30–31m* **190** *14–17m, 19–21u "la* | *produite", 28–29m, 32–34m* **192** *3–10m/3–4u "contrastantes"* **194** *9w* Decided type *14–16w* mixture of characters, or fusion *18–20w*♦ fusion of do **198** *9–13w* election of character agrees with Sturm *26–27m, 32m/w* Good Book **199** *1–4m/1u "Étalon* | *Anesse"3u "semblable* | *père"/2–5w* Election of character by sex *7–8m* **200** *7–8m/7u*↔ **201** *8–11m* **202** *27m, 28m/27–32w* In Mus of Practical Geology **212** *33–34m* **215** *2–3m/2u "combinaison* | *chimie", 3u "nouveau principe", 25–28m* **216** *9–13m* **217** *7–17w* He explains all variation & even in same species to this fancied law of chemical combination. **218** *6–20w* He forgets <u>sports</u>, which upsets his theory of variation by chemical union of qualities of two parents **229** *19u "similitude* | *caractères"/?, 21u "Mélange"/21–23w* What does Gaertner say? **253** *20–24m, 23u "mélange"/wb* similarity *24u "combinaison"/wb* affinity *wb* What rubbish **295** *21–25m, 28–30m/w* Cows **296** *3–20m/9u "Chevaux"/w* Individual choices **296–97** ⟨*paper fragment attached*⟩ **297** *25–28m* **299** *18–19m* **300** *27–29m* **301** *wt* as a mere matter of chance when anything has appeared in many generations, more likely to appear – Perhaps this is all *1–5m/?* **307** *23–24m/*Q *28m/*Q*u "sa* | *génération", 32m* **308** *17u "septième génération"* **310** *6–18w* Perhaps black-faced sheep – Anyhow I must be cautious about potency of race **315** *2–5m, 8–11m (Burdach), 12–14m, 18–22m, 28m* **316** *13–17m* **317** *15–19m* **334** *26–32m* **335** *15–25m* **347** *14–16m* **382** *10–16m* **384** *10–18m* **439** *13u "Muller", 18–21m, 20–21u*↔ **444** *19u "médiates"* **445** *wt/1–9w* Divides variations (♦ into spontaneous ?)♦ & direct effect of external agencies on the parents & on the individuals after they have life, or when born. He seems to use congenial ⟨*ie congenital*⟩ when generated & not when born.– *10c "premier"/w* spontaneous *12u "sans* | *externe"/?, 15–16u*↔*/14–21w* never seems to think of action on ovules & sperms before conception *wb* He gives so much in following pages to external conditions that I know not what is left for spontaneity. **455** *1–15m* **457** *1u "révoquent* | *caractères", 2–3u "qu'ils* | *développent"/w* after born **459** *wt* My rabbit black when young. then turning grey – there is no reason why this shd be so.– *1–3m*♦*/w*♦ ? whether new characters *3a "âge"/2–10w* ie whether the parents are young or old. Quite different question from mine. **471** *8–11m/ 3–14w* He puts all this down to climate without any reason, except that they do differ in different climates *30u "Prichard* | *42"* **472** *13u "Vilmorin* | *ont", 31–32m* **473** *1–7w* Puts all this down to climate & overlooks selection **475** *3–6m, 14–15u "jusqu'au* | *gallinacés", 16–32m,* ⇑*1u*↔*/wb* see to this **478** *1–6m* **483** *13–16m* **484** *12u "des* | *du"/11–19w* How he does confound congenital variation with real habit *28–30m/w* on writing see p.92. **493** *1–4m, 10w* coincidences **501** *17–26m/w* accident might have produced poor offspring **567** *5–15m* **571** *wt/1–7w* Differences of predisposition & disease chiefly being inheritable, blend together & not very great, & <u>are both present</u> though much discussed – good remarks all refer to *7–13m, 15–19m* **574** *7–10m/6–19w* tendency to same disease clearly transmitted in species Man during many generations **576** *15–18m* **577** *2–6m, 9u "Les* | *accord", 10u "prédisposition"* **580** *29–32m/30u "avec* | *concours"/32u "l'excitation* | *insuffisantes", wb* This enlarged on in following pages **592** *7–12m, 15–30w* To be hereditary, disease need no more appear at <u>first</u>, than that the imago shd not be heredetary, because not♦ preceded by larva. **595** *25–28m/w* good many cases given, of non contagious cases **605** *17–26m/w* Grognier What is melanism **611** *9–12m, 19–20u "c'est Piorry"* **627** *17–20m* **678** *17–19m, 19–21m, 20–21m/20u/21u, 24u, 25–27m/m*✎*/27u "enfance"* **679** *1–4m*✎*/2u "depuis* | *années", 5u "âgé* | *an", 14–29m/16–20w* asthma strong cases of Hereditary **691** *8–9m/u "cinquante* | *critique"/w* not good *17–19m/19u "dès* | *ans"* **700** *8–11m/9–10u "père* | *croissante"* **702** *14–18m/ 15u "eux* | *ans"/w* goodish **713** *24w* Clionea *25–28m/26u "au* | *âge"* **714** *29m/u "quinze"* **715** *5m/u "dans l'enfance", 7–8m* **748** *11–18m/12u* ⟨*ages*⟩*, 14u "méningite tuberculeuse"/15–16u* ⟨*ages*⟩*/11w* apoplexy **759** *12–14m/13u "quarante ans"* **802** *21–22m* **803** *8–10m* **804** *23–25m* **805** *14–18m* **806** *8–11m* **809** *22–25m* **810** *3–6m* **813** *25–27m* **815** *20–21m* **818** *22–24m* **823** *11–17m* **848** *8–11m/10u "d'élection", 12–15m/w* This important to me **849** ⟨*u*✍⟩ *6–17m/7u "chorée"/11u "phthisie"/14u "goutte"/18u "apoplexie"/6–11w* almost necessarily hereditary at same age *22–25m, 28–30m* **850** *3–13m/3–8u±, 15–16u*↔ **851** *32m/wb* young age **852** *1–3m, 4–7m* **858** *3–11m/4–5w* Local diseases **891** *18–23m/19u "on* | *filles"/ 21–22u "nominale"/w* ie by male side *wb*♦*¢¢* **892** *8–13m/7–16w* This crossing may be rather different from the obliteration of a variety by changes of conditions & selection *18–22w* Crossing will even obliterate a specific character *25u "somme* | *caractères"/22–28w* In crossing the character is not latent at all. *25u "individu"/ wb* ie with constant crossing *wb* In very latent characters both parents have. it for all ages.– Hence it comes out in cross **893** *1–7m/w* Yet likenesses in families where peculiarities have never been fixed like specific characters. **894** *4–9m/w* characters produced in act of generation *23–29m* **895** *21–23m* **896** *25–30m* **904** *28–30m/wb*♦ attributes ill effect of **905** *9–10m* **906** *13–24m* **907** *14–15m, 16–18m* **914** *22–26m* **923** *10–13m* **924** *6–9m, 26–29m* **933** *19m*

LUERSSEN, Christian *Handbuch der systematischen Botanik* 2 vols.; Leipzig; H. Haessel; 1879–82 [Botany School, FD]

LUNZE, Gustav *Die Hundezucht im Lichte der Darwin'sche Theorie* Berlin; Louis Gerschel; 1877 [Down]

NB not read only skimmed

LYELL, Charles *Elements of geology* London; Murray; 1838 [CUL, I]
geo, mi, t, ve

NB1 <u>for Lyell</u>
156 158 359 439 462 524
NB2 <u>Myself</u>
♦; ☞
p.27 38 76 88 119 171 173X 181 207 212 217 233 237 290 295,299 – Glen Roy 329 350 411 417 419 426 437 432 447 449 450 461 473 474 517

23 *wt ⟨no. of words on page counted⟩* **27** *⇑10–1m, wt* C. of Good Hope **38** *8–10m* **76** *11–16m, wt* I must be cautious about Ascension **88** *↕m* **119** *fig.m* **125** *⇑8–3m* **156** *9–16m/w* ?all infiltered? **158** *2–6m/4u "some* | *rocks"* **161** *⇑15x, ⇑14x, ⇑11u "Labrador-felspar", ⇑8x, ⇑7u "magnetic* | *olivine"* **162** *3u "Phonolite", 10u "trachyte* | *basalt"/3u/a¢* **163** *14–15u±, 21u "baslatic* | *trachytic", 22u "Hornblende rock", ⇑5u "syenite* | *granite", ⇑4–3u "greenstone"* **164** *1u "Obsidian* | *lava", 2u "pitchstone", 9u "Pearlstone", 12u±, 16u "Pitchstone", 21u "basaltic dikes", 22u± ⇑13u "of tuff", ⇑12u "Pumice* | *trachyte", ⇑11u "augitic porphyry", ⇑9u "Scoriae", ⇑2u "Syenitic greenstone"* **165** *⟨many lines.u⟩* **171** *fig 93.m/w* ?reference? *wb* An argument against lateral injection, that the origin of common dike is lateral tension which must be prolonged to surface & therefore no tendency **172** *1–15m/w*♦ Argument for – curious – separation of matter. Mem St. Jago dike was amygdaloid??? *16–19w*♦ if so introduction note **173** *fig.m/wt* Is relative position faithful? of fragment & clear salband. *fig.m/w* is cleavage faithfully represented? *↕w*✍ The cryst threads of greenstone at Salisbury Craigs. caused by cavities, like veins – when hollow – quartz veins in quartz rocks.– cavities in lava.– (space yet pressure) *⇑3–1m/w* shows not altered great dike *wb* The streching formed vacuum. & more fluid parts sucked in to walls or round fragment.– **181** *↕m, ⇑2→, ⇑1m, wb* These cases appear to me most wonderful **182** *1–5m/w* or if stone was very fluid so as to communicate pressure *1u "if no"/m♦/!!*♦ **207** *⇑4–2m/?, wb* cause? **212** *6–10m/w* Hornblend pumped out? **217** *⇑17–8m/w* poor **233** *⇑8–3m* **237** *↕m* **266** *⟨no. of words on page counted⟩* **290** *1–8m* **295** *1–10m* **299** *1–3m* **329** *1–5m/?* **350** *⇑6–1m* **359** *wt* would be preserved on such coasts as are now muddy *1–2m/?* **411** *1–3m* **417** *13–19m* **419** *⇑6–1m/?, wb* Sydney & C. of Good Hope.– **426** *fig.m* **432** *1–6m/4u↔* **437** *3–6m/3u "existing genera"/5u "Cephalopoda"/6u "more widely* **439** *14–18m/?* **447** *↕m, wb* At ● all vertical **449** *9–15m/w* Uspollata○ *13?/u "clear"* **450** *⇑1m/?, wb* Mem. Bartram.– ☞ See scrap of Paper pasted at end of Book A **458** *7–14m* **461** *5–13m* **462** *1–2m/?* **473** *5u "opposite directions"/5–9m* **474** *⇑6–1m, ⇑3?/u "olivine"* **475** *1–14m* **517** *wt* Chalk highest bed – case analogous to Cordillera *2–12m* **524** *⇑9–6m, wb* & Humboldt

LYELL, Charles *Elements of geology* 6th edn; John Murray; 1865 [Down, I]
ad, ex, fo, gd, geo, gr, ir, no, oo, sp, ta

SB ❑β, ✍
155; 168; 231 Dryopithecus; 265; 269; 299; 306; 311; 377 to 384 good case of imperfection with Mammalia○; 387; 230; 410; 414; 435; 451; 509; 510; 542; 552; 569; 576; 580; 583
SA *⟨pp. 664–5, not CD⟩* ✍
Lyell's Elements of Geology 1865.
p.155 Depths at which sea-shells can live
231 on Dryopithecus.
265 Myocene Flora richer in species than any existing
269 To West of Rocky Mountains extinct genera now formed to the east.
265 to p.273 on the supposed Atlantis

299 Footprints of mammals in great numbers in upper Eocene
306 On the Eocene nummolitic rocks. forming parts of great mountain chains.
310 On great break between chalk & Tertiary
377 to 384 On Purbeck beds showing imperfection of record – 387 ditto
410 On great breaks in oolite series. 414 ditto
435 St Cassiew Beds. 1st appearance of some Paleozoic genera
451 Hitchcock on Footprints in U. States
509 On airbreathers in Coal period in U. States
542 On lowers Devonian formation at C. Good Hope
552 On oldest known fossil fish
571 Table of Cambrian formations
576 On some of the oldest fossils
579 On the Laurentian formations
580 Speaking generally Silurian deposits have a pelagic character
583–585 Table of the first discovery of fossil vertebrates

viii *2m* **ix** *9m, 34m* **155** *1–4m* **168** *32–39m* **231** *9–46m* **265** *39–47m* **269** *21–29m* **271** *1–5m, 34–41m* **273** *8–18m* **299** *31–37m, 42–47m* **306** *2–15m* **310** *25–31m, 32–41m* **311** *17–20m, 44–49m* **333** *15–21m* **377** *21–38m/32–33u±* **380** *6–17m (Owen and Falconer)* **384** *27–34m* **386** *19–32m* **387** *9–15m* **390** *15–34m, 35–39m* **410** *14–24m, 36–40m* **411** *9–17m, 43–46m* **414** *7–17m, 24–29m, 29–45m* **435** *16–23m, 24–30m* **451** *16–27m* **508** *25w* Coal *26–31m* **510** *4–21m* **542** *33–40m* **552** *9–17m, 20–30m, 32–42m* **553** *12–19m* **569** *16–23m* **571** *table.m, "Lower Cambrian Rocks".m* **576** *10–14m, 40–44m* **577** *6–14m, 46–49m* **578** *43–45m, 46–47m* **579** *2–3m, 5–7m, 20–21m, 24–38w* must have lived on prey *41–49m* **580** *4–7m, 11–13m, 18–21w* now has Eoozoon **581** *1–3m, 15–17m* **583** *table.m* **584** *33–40m* **585** *28–34m*

LYELL, Charles *The geological evidences of the antiquity of man* London; John Murray; 1863 [CUL, I]
cc, ch, ex, fo, gd, geo, gr, h, ig, in, ir, is, no, oo, or, r, sl, t, ta, ti, v

NB1 ♦
Torquay Head & shoulders
Fuller description of Celts
Alludes too much to Principles.–
Imperfection of Geolog. Records very good. 187
p107 reduced
p.111 fallen level

p.147 – square acres
179 Sir Andrew Smith
One sentence for S. Hemisphere & absence in Tropics New. Zealand Celts.
NB2 Man Chapt.; p 87. Variation of Australian skulls; 90; 91; 370; 375 378; 386; 493; 496; 495
21; 22; 24; 143; 145; 146; 157; 191; 216; 236; 282,285; 288; 351; 365; 367; 375; 400; 427 – to end of Chapter; 433
SB ❐𝔑, ✍
p.145. Imperfection of Geolog. Record
157 Glacial Mammals
216 Contrast of Flora & Mammals of Norfold ⟨*ie Norfolk*⟩ Drift (see 2d Edit)
236 changes of climate in Greenland.
282, 285, 288 wonderful complex changes during Glacial period
351. Ice action on N. American continent
365 Bending of isothermals Europe & N. America
367 Depth of Baring St.
400 Eocene mammals in stages older than formerly thought.–
427 Davidson reduces Brachiopoda immensely.– gradation of forms
429, 437, 439 well argued – gradation
446 Argument that Bats & Seals have not produced on Islands new forms of life – Why not wingless Bats. there is no insectivorous apterous Bird ??
over
p449 Imperfection of Geological Record

x *37–38m* **xi** *4m, 22–23m, 35–36m* **9** *17–19m* **16** *13–16m* **21** *4–9m* **22** *30–31m/30u "swamp"* **23** *29–33m* **24** *14–18m* **25** *11–24m* **26** *6–12m* **27** *5–11m* **87** *1–11m* **90** *17–20m* **91** *5–8m* **107** *28–29m/28c "reduced"* **111** *26–27m* **143** *6–12m* **145** *19–26m* **146** *21–32m* **147** *7–8m/7u/c "square"* **157** *8–15m* **187** *18–26m* **191** *8–12m/w* How modern compared with old stone period **216** *18–23m, 29–32m* **229** *24–29m* **231** *17–25m* **236** *22–29m* **237** *26–33m* **243** *12u "stones"/w* striae **257** *31–32m* **282** *2–29m, 1–13w* wonderful changes, so complex **285** *4–13m* **288** *12–15m, 20–25m* **294** *1–2m* **351** *18–22m* **365** *14–22m* **366** *5–10m* **367** *1–4m (Darwin and Hooker), 20–23m* **370** *4–24m/13–18w* Progress *28a "stone"* polished? **374** *10–11w* S. Africa **375** *3–12m* **378** *1–4m* **379** *1–18m/2–4w* wrong? Australians **386** *5–8m/6–7w* see reference **400** *6–18m* **412** *26–27m/26u "labours"* **413** *4–6m/5u "is|by"* **421** *24m/u "Sefström"* **426** *8–14m* **427** *8–17m, 33m* **428** *23–31m* **429** *15–22m* **430** *27–33m* **433** *25–32m* **436** *5–15m* **437** *5–13m* **439** *2–6m, 20–30m (Leidy)* **442** *23–32m (Hooker)* **443** *13–16m* **444** *18–21m* **445** *1–7m, 23–27m*

446 *19–21m/21u* **447** *3m/1–14w* I ♣ have added great ♣ means of change vast nos of individuals – in my discussion whether rapid change *27–32m* **449** *28–30m* **450** *10–15m, 21–22m/21u "macrurus"* **457** *5–8m* **463** *10–12m* **464** *3–4m* **465** *24–25m* **467** *17–18m* **469** *18–24m, 27–28m/u "become | probable"* **493** *24–29m (Agassiz)* **495** *20–22m (Quatrefages), 21w* No **496** *11–17m* **497** *wt* Rengger says Monkeys are improvable *1–3m/2u "progressive | reason"/ 1–5w* compared Dog or wolf or Jackall *9u "capable | improvement"* **500** *3–8m/?* **503** *17–21m* **505** *1–4m/4u "unprogressive" 5u "improvable reason"/2–3w* oh **506** *8–16m, 23–29m*

LYELL, Charles *The geological evidences of the antiquity of man* 3rd edn; London; John Murray; 1863 [Down, I]

LYELL, Charles *The geological evidences of the antiquity of man* 4th edn; London; John Murray; 1873 [CUL, I]
ig, tm

NB 486, 488 on the intermediate types, very good
486 *1–9m* 488 *1–13m (Falconer)*

LYELL, Charles *A manual of elementary geology* 3rd edn; London; John Murray; 1851 [CUL]
ch, co, fo, geo, gr, mi, se, sl, sp, tm, ve

SB CD 65; 66; 68; 95; 98; 103; 107; 139; 147; 150; 151; 152; 155; 174; 176; 188; 197; 200; 219; 231; 235; 265; 270; 273; 297; 298; 301; 306; 309; 324; 336; 340; 359; 360; Abstracted; V. Principles
⟨*over*⟩ ◆
p217 coral-mud known to be transported
Spec growing by AscencionO
p221 S Amer Chalk
p220 p.235 p.282
Copper in Sea-water – absent in Volcanic regions
sucked out of rocks
facts not given
area of elevation – like a fan

36 *33u "may", 34–37m/34u "artificial mixture", 41–42m/w* on volcanic rocks **40** *25–28m/?* **55** *12–19m* **64** *wt¢¢, 16–19m* **65** *27–33m* **66** *13u "running"/14u "marine current"/12–29w* !Think of the 32,000 ft of strata – so much deposited; sea-chalk **68** *3–13m/12–14u "at | another", 14–18m* **81** *33a "sun"* earthquakes *36–37w* shell-sand sand-dunes **84** *17–18m◆/ w◆* only rising **85** *6–8m/6u "In | cases"* **95** *3–10m/4w* so age **98** *20–30m* **103** *35–40m* **107** *4–16m* **113** *23–34m* **139** *1–10m, 13–24m* **147** *31–37m (Owen, Meyer)* **150** *8–29m* **151** *19–27m◆* **152** *27–29m* **155** *21–28m* **166** *42–43m/ 42u "Carentan"* **174** *20–23m, fig. 153.m* **176** *13–18m* **177** *⇑3–1m/x, wb/↕w* singular how rarely little patches of half-a-mile of green left except outlyers. colour in large patches– ? Silurian largest? V. Map of Europe? & World **188** *3–9m, zb* **197** *1–8m* **200** *11–32w* see what difference even within Eocene *21–34m (Brongniart)* **219** *42–44m* **228** *34m* **231** *15–24m, 23–26m* **235** *20–24m, 45–49m* **265** *29–36m/w* Mem Purbeck animals changes *38m* **266** *1–11m, 38–44m* **270** *14–24m* **273** *1–3m* **297** *42–45m (Hitchcock)/43w* **44** *46–47→* **298** *44–46m (Owen), 31–40m* **299** *22–24m, 38–43m (Dana)* **301** *10–11m, 14–18m* **306** *16–22m* **309** *19–22m* **324** *12–16m* **336** *30–37m* **337** *5–7m (H. von Meyer)* **340** *38–40m* **359** *1–5m* **360** *3–12m, 15–33m (E. Forbes)* **468** *2–6m, fig. 509.m* **469** *30–35m, 32–37z* **472** *4–12m* **480** *27–35w* granite not flowed; grain in granite

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t

NB p139
SB ⟨*errata-sheet*⟩ Please paste this in without delay
x *fig.m* **xiv** *fig. 529.m, 25–34m* **xvi** *27–33m* **xviii** *12–31m, 29–33m, 41–45m* **xix** *10–15m/ 13u "Cephalopoda", 24–26m, 31–41m (Owen)* **xx** *8–9m/?, 13–18m, 23–27m, 28–32m, 39–40m, 41–44m, 45–47m* **xxi** *11–13m, 15–16m, 18–19m, 29–32m, 42–47m/46a/u "embryonic" "perfect condition"/wb* This is not an equivalent proposition **xxii** *9–17m, 28–32m* **29** *4–10m* **30** *15–17m, 30–34m* **31** *4u "carnivorous"* **34** *35–40z* **138** *41–42m, 41u "post-glacial deposits"* **139** *3–6m/w* what evidence *13–39m*

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ch, ex, fo, gd, geo, ig, is, no, oo, or, r, sl, sp, t, ti, tm, v, ve

NB ◆
Chapter on Veins absent in volcanic regions as shown by no veins on any volcanic islds
p.460 misprint
Amber beds L. talks more about Lower Limburg or Hampstead Beds
p.231 Hardly distinct age of Alps ?
It is shame you have never read my Abstract of S. Amer
p118 p.130 p.18 p.53. p.97 Principal For.

p.238 11 from top – Cambrian
p.295 not clear whether 3 strata with gypsum?
Wealden more historical
p310 misprint
p.339
p406 very good
504 Canary Isd. do.
SB
I begin at Chapt ♣ X.–
p.114
p140 important to end of Cha. Think of effect of the cold Permian current meeting the N. downward current.
p154 to – p 435; p.447; p448 to 463
Abstracted

114 *7–9z, 38–49m* **115** *1–6m, 41–46m/w* Plants probably long-lived **119** *12–25m* **120** *21–28m, 38–42m* **140** *20–23m, 34–37m, 38–42m/w* see next page *47–49m* **142** *27–31m, 28–29m* **143** *15–18m, 43m* **144** *27–32m/w* How is this in Europe. *29–32w* Macrauchenia in Patagonia *40–49w* In Chiloe recent shells occur in changed proportions. **145** *38–41m, 46–47m* **146** *1–5m/w* Is it certain that Elephas & Rhinoceros survived glacial Epoch.– **154** *33u "variety called", 35u "some naturalists", 36–38m/33–47w* Is there not great difference about fossil Boves. Have Nillsons writings been translated into German? **157** *18–25m* **164** *48–50m* **183** *1–5m, 32–35m/34u "seven species"/23–49w* These numbers, as in Brazil cases, wd make one think succesive Faunas merged.– **192** *25–29m, fig.169.m* **193** *1–4m* **195** *43–46m* **197** *33–49m/ 37–42w* 3 Mamm Faunas besides recent **207** *20–23m* **212** *26–30m* **213** *18–23m* **217** *19–29m* **220** *24–28m* **227** *39–42m* **230** *40–46m* **231** *4–6m* **232** *24–29m/ 19–35w* Yet continents must have existed nearly as now during <u>later</u> Tertiary periods. **236** *12–17m, 41–44m*♦ **237** *8–16m, 19–25m, 29–34m* **238** *11c/w*♦¢ **251** *24–26m/26u "perhaps Wealden"* **255** *21–28m, 30–32m* **256** *26–27m/27u "ten other", 33–35m* **257** *1–6m* **258** *26–39m/w* so geographically; consider this.– same functions & purposes, slight differences; implies separation: hardly S. & N. species at ♣ Shows a coordinate change in several forms. **267** *9–14m, 17–22m* **268** *4–7m* **295** *4–7m, 29m, 34–35m* **296** *14–20m* **297** *7–9m* **300** *7–17m* **301** *6u "great | time"/2–6m/w* Selection slow – change of species reacting. new introductions. *22–26m* **308** *33–35m/ 33u "of change"* **309** *1–2m* **310** *7–16m* **311** *17–20m* **313** *32–38m/w* Has not 4th species been discovered **316** *17–22m* **319** *31–35m* **321** *zb* **324** *1–2m* **335** *25–31m* **337** *21–26m (A. Brongniart)* **342** *17–32m* **343** *43–46m (Owen)* **348** *38–43m* **349** *40–41m (Owen)* **350** *40–44m* **351** *9–12m* **357** *24–30m/w* duration of plants **358** *32–37m (Murchison)* **359** *27–32m* **360** *25–28m* **363** *34–45w* When we come here Plants have changed even more than animals 369 *35–36z* **373** *22–28m* **380** *40u "sixty-eight"* 389 *4u "Scarabaeus family"/1–4m/w* ancient & great classes of insects. *9–10m/*Q✍*/9u "several | Termites"* **400** *35–37m, 40–42m/41u "no | than"* **401** *13–21m* **404** *33–36m* **405** *3–4m, 15–16m, 20–22m (Owen), 31–32m, 36–39m* **406** *5–15m* **407** *11–17m, 14–16m* **408** *3–8m/w* Passage a difficulty. great one.– *20–22m* **410** *30–35m/w* This analogous to Goulds birds coloured in interior of continents. **411** *7–10m* **416** *fig. 536.m* **417** *7–12m, 15–19m* **418** *6–10m* **423** *26–27m, 29–32m* **424** *11–14m* **433** *1w* Read **435** *33–35m* **446** *6–10m* **447** *3–10m, 24–28m, 31–32m* **448** *1–2m, 13–15m* **449** *27–31m, 34–36m* **450** *39–42m* **451** *3–9m, 21–24m* **453** *1–4m, 17–21m, 30–31m (Murchison)* **454** *9–14m, fig. 617.m, 27–31m/28u "facies of"* **455** *15–19m* **456** *17–21m, 22–25m/22u "unconformably", 24–26m, 28–32m* **457** *17–20m, 20–21m, 24–26m, 30–37m, 45–47m* **458** *8–13m, 17–21m, 24–28m* **459** *3–5m, 17–19m, 42–46m* **460** *16a "1839"* no Secondary Bird *38–40m/39a "1810 | C8"/w* 7 *48–53m* **461** *15–18m, 35–41m, 44–50m, 47–49m* **462** *6–12m, 12m, 15–19m* **463** *5–9m, 13–15m, 17–24m* **553** *18–25m/ 22w* 3° Lat *27w* 4h *31w* 5h **516** ⇑*16–11z*✍

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ch, f, geo, ti, ve

vol. 1, 308 *11–23m* **314** *32u "forty-sixth"/w* what Volcanos ? **315** *11–16m/11–14m/?* **325** *11–40m* **346** *1–24m* **374** *20–38m* **440** *11–19m* **468** ↕*w* We may more easily imagine the fluid stone injected (as occurs in every mountain chain) amongst damp strata.– *wb* at time of Earthquake Lava under great pressure, how could water penetrate to it would it not be driven back with violence?– **470** *28–38m* **471** *22–39m* **476** *1–19m* **477** *13–18w*♦ if there are hollows left what forces up the lava

vol. 2 NB p153 Ulloa ♣ on asses multiplying See this Book generally on this subject 201 *5–22m* **248** *1–7m* **291** *12?/u "Otaheite", 24–25w* oval & irregular form? **294** *13–18m/15w* Galapagos *19–34m* **295** *7–14m*
℘

vol. 3 NB1 6.– Sand as 1 & 2; 7. Large shingle or Rock

NB2 ¢¢
58 *20u "synchronous"/20–23w* if the rate of change is everywhere the same **114** *10–15m/?/w* <u>Flat</u> valleys & terraces **152** *8–9w* Estuary

Glossary, 61 *30m, 32m* **62** *8m, 28m, 38m* **63** *6m, 7m, 10m, 17m, 28m, 34m, 38m* **64** *1m, 5m, 9m, 18m, 19m, 21m, 24m, 36m, 41m* **65** *1m, 6m, 10m, 15m, 18m, 19m, 42m* **66** *2m, 5m, 6m, 8m, 21m, 27m, 29m, 49m* **67** *18m, 29m, 33m, 37m, 43m* **68** *5m, 10m, 12m, 18m, 38m* **69** *3m, 4m, 13m, 15m, 29m, 35m, 40m* **70** *3m, 12m, 23m, 25m, 32m, 38m, 42m* **71** *5m, 16m, 21m, 37m* **72** *3m, 22m, 33m, 42m* **73** *10m, 21m, 26m, 29m, 32m* **74** *3m, 5m, 10m, 19m* **75** *11m, 15m, 35m* **76** *5m, 14m, 18m, 20m, 23m, 25m, 34m* **77** *3m, 20m, 32m, 34m* **78** *14m, 21m, 30m* **79** *3m, 23m, 27m, 30m, 31m, 32m, 34m, 42m* **80** *3m, 8m, 13m, 18m, 20m, 25m, 30m, 32m, 34m* **81** *3m, 7m, 18m, 19m, 20m, 24m, 30m, 33m, 34m, 40m, 42m* **82** *4m, 6m, 10m, 18m, 37m, 41m* **83** *1m, 6m, 12m, 15m, 23m*

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ad, beh, br, cc, ch, che, co, cr, cs, dg, ds, dv, ex, f, fg, fo, gd, geo, gr, h, he, hy, ig, is, mg, mhp, mi, mn, oo, or, pat, phy, se, sl, sp, sx, t, ti, tm, ts, v, ve, wd

vol. 1 NB ◆ 144; 146; 147; 153; 155; 161; 168; 187; 248; 270; 278; 285; 326; 350; 381
132 *9–32m/"..."* **144** *1–20m/15–20w* Mem Guanaco dying near water **146** *14u "tropical plants"/14–17w* C. of Good Hope **147** *wt* Jaguar in Lat 42° Puma – 53°? *1–3m, 16–20w* Puma 10,000 ft high near snow **150** *18–20m/w* Guanacos at 70° *29–31m/w* 69° **151** *6–10m (Pallas)* **153** *12–14m, 18–22w* Mem desert character of C. of Good Hope **155** *17–24m, wb* Mem. tropical vegetation. South America approach. limits of perpetual congelation. **161** *wt* Tree ferns appear not to like the light, most gloomy spots *14–23m* **168** *25u "Indian"/?* **187** *15–20m/16u "longer | sun"* **248** *7–19m* **270** *14–22m* **278** *17–27m* **279** *zt* **284** *zt* **285** *wt* Lockhead on Guyana – Demerara river. Edinbg Transact Vol IV *15–21m* **318** *25–31m (Sedgwick)* **326** *6–15m, 16–30m/w* Gypsum stalactites Ascension *wb* Little evidence of Volc action in many parts of Tropical coral forming seas **350** *wt* How can lime be precipitated? more water.– *1–17m/2–8m* **381** *wb* great tides sometimes on very open coasts, Patagonia **434** *16–17m*

vol. 2 NF1 Mississippi, New Madrid, & Caraccas 46
Albite Volcanic Rock V. Buch p175
Necker on curves Mag. & Mountain chains p.326
◆ Exert. m
Exemplify the force of pebbles knocking together
Beach. is only cause of sediment on whole of Peru,– as far as granite so far same sediment
NF2 ⟨*drawing of mountain*⟩
p.336 trees touching ground
p.217 Dolomen Calabria
NB1 ⟨*on p.442*⟩
X Argument 2nd. Excellent argument sheep do not get big tails in Africa or cattle longhorn or cow bumps on back, or dogs like fox in Australia, or – or – or – yet whole breed being so. it must be effect of country, yet exciting or else Nature would have altered back XXX
XXX Now if in course of ages (having shown time is requisite) offspring differed as much from Indian Cattle & as✍ Buffalo✍ near✍ long horned & as these do now from common stock. then would they perish.–
These irreversible changes may explain extinction they might act on some important organs & become hereditary like diseases
Without reference to either, but simple change
The great difficulty appears, that though some animals long domesticated change not indefinite (Do we know this), but most domesticated animals are hereditary monsters. yet we should have expected some race which would have showed a slight repugnance to breed with our animals
X 2d. The changes apparently being rapidly superinduced in domesticated animals. The very character of species is ♣ character being hereditary, & as we know we can give forms not hereditary, some that are; we might expect gradation
NB3 ◆
p.215
187 Ask Captain about earth parting from solid Rock
Beechey is he authority of Concepcion? – No, Lesson? – no
Stokes, height of any land near Concepcion?
Sulphur passing from solfatara like veins, analogy
Abich bulletin of Geological Society of France Leucite in specks. Galapagos VII – 1835–1836
Von Buch. Canary Isld.–
NB4 12; 20; 27; 36; 41; 42; 46; 55; 149; 151; 185; 188; 192; 218; 221; 255; 256; 305; 351; 356; 403; 416

The two kinds of Elevation going on together
Error in Constant Prevost. p.154
⟨*w*♦ ●⟩
p323

12 *wt* The work of degradation goes on in inland bays.– St Joseph.– *2–8m (Pallas)* **13** *zt* **20** *5–13m/10–12w* Peru **27** *24–28w* Mouth of St of Magellan *31w* St.Helena **36** *wb* Pebbles beaches enormous manufactory for sediment draw back.– muddy water Calcaire **41** *10–18m/13w* No **42** *8–29m (Humboldt)* **46** *1–8m, 20–26w* Juan Fernandez *29–32w* ancient trap rocks **55** *7z, 8–16m* **54** *zt* **149** *2–8m* **151** *zt, fig.z, 18–22m/19u "dike"* **154** *27–29m* **156** *9–16m* **158** *1–17m* **175** *15–31m/17u "local earthquakes"/18u "conceded"* **185** *zt* **186** *wt/1–7m/w* Connection○ of local earthquakes *fig.z* **188** *23u "northward"/w* South **190** *1–4m/2u "one hundred"* **192** *11–17m, 21–23m* **203** *wt¢¢, 16–33m, wb* New Madrid to coast of Caraccas 2040 miles **218** *13–16m* **221** *15–20m* **255** *16–26m* **256** *16–21m, 22–25m, 22–28m* **257** *3–8z/4–5?* **298** *3–17m* **301** *26–32m, 30–33m* **302** *29–34m* **304** *wt* How come stones not displaced? *1–8m* **305** *zt, 15–23m/z/18w* Pampas *zb* **307** *21–24m/w* no *wb* Jamaica. Isd in Pacific Ocean **311** *4–18m/7–14"..."* **318** *8–10m* **326** *5–13m* **336** *16–25m* **351** *32–34m/?, wb* & water **356** *16–23m* **360** *wt* It is somewhere said Hippopotamus found in rivers of Asia – ?! This must be looked to **362** *24–25u "progenitors", 25–27m (Geoffroy), 32u "ancestors"* **364** *3–5m/4u "still more"* **365** *wt* When writing refer to this abridgment compare & see if true *6–13m* **368** *12–18m (Lamarck)/w* isolation not considered **370** *wt* why if changes in circumstances rapid not changes in species.– It looks as if each peculiarity required to be firmly impressed XX *2–9m, 9–15w* loss of tail a loss of organ *16–21w* Double flowers assumption of organ *wb* XX hence plants long cultivated cannot be recognized! – Pyramids of Egypt **374** *23–34m, wb* Because there were localities fitted for simplest animals as well as the most complex. therefore some remained simple, if not created. The incidental good that one race performs to others proves adaptation in Universe. **375** *1–7m, 28–32m* **376** *1u "progressive"/wt* change of adaptation *17–34m, wb* very diff from my view **377** *22x, wb* No more inexplicable than Bump in Indian Cow or change in Plants.– **381** *1–3m* **384** *17–23m* **386** *1–8m, 13–34w* In mammalia we must stick to one rule – let fertility be test.– *wb* Hogs varieties in animals but in plants species which are fertile? **387** *21–26m, wb* Mem. find of Land Shells **391** *7–11m*♦ **392** *16m, wb* Varieties are made rapidly by man. Are there any cases of animals going back in one generation to parents stock **393** *32–33m (Dureau de la Malle)* **395** *wt* X I think this fact coupled with Egyptian shows change suddenly produced *1–33w* Not time to form varieties in America & Australia – X Appeal to any breeder, whether if none imported, some breed would there be endemic *wb* Yet those animals in certain countries have been changed, but yet fresh ones now imported do not change Oxen do not get long horns now in S. Africa. **397** *24–25u "three|centuries"* **398** *wt* see Boussingault Falkland Rabbit & Horse Study Azara. Mice of Cape de Verde *2u "The|cattle"/1–5m/w* Falconer Dobrizhoffer *14–34m/14–15w* great difficult. X *wb* Have they? What is date of Cat of Persia Dog of Australia Sheep of Cape of Good Hope. **399** *wt* Llama of S. America **400** *26–31m* **401** *5–10m, 31–32m (Smith, Knight), wb* Study Horticultural Transactions **402** *1–9m, 1–6m/1–17w* parallel-Monsters in Animal Kingdom **403** *6–15m (Henslow, Herbert) 17–26m* **404** *wb* Wild dog of Australia, grand fact. It would be good experiment to find whether plants which transmit their varieties easily ♣ present any difficulties in crossing.– *wb* There appear two kinds of variations one persistent & other varying. Man offers instance of first – how is fact of crossing with them/– **406** *wt* A So they maybe be not very permanently ? Esquimaux dog on Indian Cattle could they. *1u "its", 28–34m* **407** *wt* The idea of slowness, & of long intermarriage to make variety perfect & then when perfect it will rebranch off.– *1–5m/X, 7–19m/8–9w* A *29–33w* Yes until it is made species *wb* In those where change greatest we do not know what was aboriginal **408** *21–22u "indefinite|ages"/w* adaptation *wb* The effects of time must be shown in effecting propagation. Wheat, & old vegetables most constant. yet we hear of new & strange variations produced in far countries **410** *32m (Roulin)* **412** *17–27m, 32–33m (Jameson)* **416** *1–4m/1a "in"/wt* parts of **417** *13–17z/15–18w* not to Man but beast *32–33m* **419** *5–34m, 4–7m/wb* & when perpetuated, more might be gained like the intellect of civilized man.– **420** *17–31m, 19–31m/w* Strong argument *24m* **421** *wb* If wolf & Fox same very different habits **423** *21–26m (Buffon), 27–32m, 30–34m, wb* Where **425** *wt* Tiger & Lion intermediate *3–30m (Hunter, Wiegmann, Prichard), 32m (Hunter)* **426** *6–34m* **427** *11–18m, 13–15m, 27–33m* **428** *12–32m* **431** *11–23m* **432** *6–21m* **433**

13–22m◆ **435** *8–16m, 19u "species", wb* Centaurea hybrida **439** *1–7m* **441** *28a "great"/26w* or small *30–32m/w* with *34a "offspring"/w* with no tendency to go back *wb* respect to changes superinduced in short period **442** *10u "improvement or deterioration"/4–12m/w* if this were true adios theory

vol. 3 NF1 p63 Vanessa migratory
p93 AD1794 unparalleled for drought.
Cape de Verde? Monkey peculiar?
How far High land from the Radark Islds
Insist very strongly on animal, resisting powers of breakers
NF2 *z*
NB1, 2 *z*
NB3 Lyell for Ch
◆ 7; 8; 10; 19; 31; 32; 50; 70
109; 115; 121; 182; 227; 270; 272; 274; 380; 434; 424; 440,41,42; 445
128; 138; 182◆; 179; R Recent; 380

4 *wb* There is a resemblance analogy of animals of tropics like that of animal inhabiting Water or air – This is different from forms of Isd near continents **5** *23–33m, wb* Consult R. Brown. Appendix **6** *5–14m, 19–31m* **7** *4–10m/4–6w* V. Lesson **8** *16–22m/w* Royle **9** *27–34m/24–25?*♣ **10** *7–11m/w* authority? **14** *32m (Brown)* **19** *zt, 19–27m, 29m, wb*◆ In Jenner paper Royal Transact pidgeon cross daily England & Holland **20** *wt* The first origin of migration must be before countries had divided *30–34m* **21** *1–8m* **23** *3–27m (De Candolle), 6–23m* **29** *10–14m/11u "three | belonging"/w* &c *wb* & subgroup.– Madagascar &c **30** *wt* Ask Lyell for authority *1–4m, 33m (Temminck)* **31** *15–18w* Barbarossa Marsupial animals *21–24m, 25–28m* **32** *1w* Falklands *3–5m, 24w* was taken by Cook to N. Zealand **33** *wt* Crocodile near the Navigators *1–5m* **34** *15–20m/17?/u "remote"/w* 10 miles **35** *wt* Elephant Borneo &c &c! **42** *3–33m, wb* Not in the least applicable to big animals **43** *1–29m* **46** *1–4m, 18–27m* **48** *4–18m (Spallanzani), wb¢¢* **50** *25–28m, 25w*◆ Ascension *wb*◆ Frogs not on Volcanic Isd. Snakes Lizards first **51** *wt* How far from Mainland? *13x/13–25m* **54** *15–20m (Gmelin), 33m* **57** *11–24m* **58** *1–19m (Lowe)/21–28m/wb* the species of general diffusion are they like Lizards & Frogs, with rsp to eggs.– **62** *1–23m, 7–9m/8u "sea-pens"/21–23m/7–23w* Duck weed Caryophillia Sponge **63** *21–24m, 32–34m (Kirby & Spence)* **64** *22–32m (Kirby)* **69** *28–33m* **70** *24–30m/26–27w* No *wb* Falklands Bourbon Norfolk Isld Pitcairn? Mauritius Galapagos **71** *13–29m, wb* Dillons Voyage **78** *24–31m* **79** *1–4m* **80** *1–34m* **81** *6–33m, wb* All

this agrees perfectly with my theory **85** *21–33m* **93** *25–29m* **99** *wb* (Most Philosophical Chapter) **109** *5m/?/u "lizards"* **112** *3–12m/wt* Journal *24–29m, 32–33m, wb* Reference to quadrupeds native inhabitants **115** *3w* St of Magellan **117** *21a "of"/19–20w* intellectual **119** *16–29m, wb* will the theory do, forms acquired but not unacquired ∴ change extermination **121** *22m/?/u "mangrove"* **128** *1–8m/w* capital *30u "shallow | the"/w* where **133** *10–19m, wb* authority? **134** *wt* Were separate sexes introduced in those orders most subject to variation? **135** *20–33m* *136 3–19m* **138** *wt* Besides difficulty of transportat in two directions, surely time required for such change of climate would produce fresh species. **139** *wt* Alpine forms ought to be varied, to be sure mountains generally near each other *1–5m, 13–23w* x Yes but he accounts for the insects on top of mountains *22–33m/x, wb* Intermediate steps◆ species, propagation on isld.– **140** *3–19m/wt/1–15w* Certainly not but the chesnuts & some of the Tropical forms must be altered into races *18–33m* **141** *1–19m, wb* Good **144** *4–10m, 18–22m, wb* & where whole continents have become colder then Mountains centre **146** *23–26m/w* which reasons? *wb* Sudden appearance of animals quite done away by my theory. State what opposite theories have been driven to. **149** *zt* **152** *wb* Nothing beyond this with reference to Transmutation of Species **153** *1–3z* **154** *22–34m*◆ **178** *wt* Worms turning up soil *1–10m (MacCulloch)* **179** *wt/1–7w* May this not be viewed merely that the peat plants cannot grow whilst under trees but conquer when blown down *8–15m* **182** *10–19m, 19–31m/22–26w* action of bog on red sand **217** *zb* **227** *wt* earthquake caused by subsidence *4u "subsidence | earthquakes"* **270** ⇑*9–1m, wb* Coral was on Stones Yet probably moved **274** *wt/1–28w* in one case dependent on the species, in other on no decomposition *zt, 20–26m* **275** *3–6m/w* only in some zoophytes **276** *fig.m, zb, wb* not characteristic **279** *1u "land birds"* **281** *zt, 1–4m* **282** *zt, 3–8m, 21–26m, wb* Only can be judged after subsidence artificial channels in Cocos soon filled up.– **283** *zt, 14–20w* Meandrinae ● *25u "we admit"/w* No **286** *1–22m/14w* very good **288** *zt, 10–21m, 16u "Otaheite"/w* parallel lines *23–27m, 24u "corals"* **289** *15–19m* **290** *zt, 14–24m/w* Mud **292** *18–29m/w* very good *22–29m* **293** *wt* I suspect reefs of diff strata in diff parts *1–3m* **294** *1–2?* **297** *8–11m, 12–15m* **298** *wb* where is the reef 600 miles long? **299** *wb* Why lime not all fastened near Equator **380** *9–15m*

424 *zt, 14–28m (Daubeny)/w* Galapagos Ascension **434** *zt, 1–19m/w* ought not this to have come sooner or never **440** *1–13m/w* follow it out **441** *3–5m/4u "at | elevations", 24–34m, wb* This would be the result if the periods of repose followed each other in a moreO accelerating **442** *wt* at first stage little more repose would destroy bit z, but how much longer to destroy z: *fig.m/w, 7–13m/w* X surely all valleys *wb* Origin of St. Cruz Valley *wb* Mouth of St. of Magellan **443** *25–31m/?, wb* Terraces; cliffs; on sides of valleys; Inclination of valleys **445** *2–23m/12–16w* Capital!

vol. 4 NF1 p.25 elevated hills Red Sea
Good remark on Cleavage; and on cal. columns
The pureness of the Primary Limestones argument in favour of not sole metamorphic but separation
p.13 Geograph Journal Vol V Ca rises from the bottom with stones Thames & Angara is frequent.– it cannot be dribbled water merely freezing in large estuary.
p.224 Shows much inclination after elevation into dry land
NF2 Mem. Transportat of shells by sea weed
Falklands, no Boulders ∴ subsidence
✍ Baron Munchausen story of frozen horse
Gold being found near surface of Granitic countries, same vapor pressing upwards
Tension? does it express ♣ compression?–
NB1 ♦ Read Meyer Look to Humboldt Vol II
p.213 Pata wronO spelt – Lucanas?
Put Table of Chapters
Lucanas diocese Guamanga 25 or 30 SW of Guamang, Lat 12°50'.
150 miles from Sea Volcan so called in Chapt in Humboldt Map p40 N. sub◗ leads to coast
Index wron Mountain elevation of I.
NB2 ♦ date of earthquake Concepcion wrongly spelt
number of numbers wrong G.F.
What is proof of hills of Miocene, Scoriae
Lyell's index wrong ice Vol. I 269 icebergs
7; 9; 38; 80; 99; 107; 125; 141; 143; 161; 162; 201; 214; 224; 244; 252; 254; 258; 262; 264
Vol I p.257 24 If elevation eheu! date wrong 1752
Are the plates of shells worth their expense
Just mention M St Elias
282; 284; 292; 298; 308; 309; 311; 312; 324; 332; 350; 360; 363; 366; 372; 377; 378; 380; 381; 388; 386; 392

3 *14–32m/15–16w* G *18–25z/w* G **7** *wt* ?Has not great force tendency to break things smoothly, mem pane of glass with bullet **8** *8–15m/11?, 14–18m/15u "made | upwards"* **9** *1–14m/3–5w* St Helena **10** *1–5m/3w* scoriae **16** *8–17m/10u "chiefly"/11u "historical"/?, 14?/w* no doubt generally *23–25??* **17** *9u "Rimao"/w* C. *16–23m, 26–32m* **18** *3–20m/6u "Pacific", 10–14w* dip seaward **19** *zt* **20** *30–34m (Deshayes)* **23** *9–25m* **24** *22–23m, wb* What would Hopkins say to expansion without fissures?? **25** *22–30m/w* Ehrenbergh **28** *21–26m/11–26w* odd ● in tusk **38** *wt* Why not estuary? **47** *2–5m, 3–9m/?/!!* **63** *17–20m* **80** *7–14z/w* too much? **81** *25–31w* first origin? *wb* break? **83** *zt* **99** *zt, 1–3m/?* **107** *zt, 23–32m, wb* Azores? Melted lava Galapagos ♣ volcanic rocks **109** *zb* **117** *wt/8–15m/w* Black silicified wood/B. Blac red Clayed *16–18m, 18–19w* X Patagonia *31–33?* **124** *fig.z* **125** *31–33m, wb* This different from other section & like Patagonia **126** *1–4m* **141** *10–29m, wb* Ascension **143** *wt* a very admirable specimen of descriptive geology **161** *wt* excellent for beginners but elementary *1–19m* **162** *15–22m/w* excellent *20–3m* **163** *1–10m* **201** *wb* Leave out Mosaic flood? flood generally **214** *10–33w* Mem Ascension Migrants proves London movesO from ● **224** ↕*w* How far from base of escarpment does gravel extend (of the S ought to be more marked)(then 3 to 4–) *wb* show ♣ inclination after elevation into dry land **225** *zt* **226** *1–13z, 20–29z* **227** *fig.w* very good **232** *fig.w* Diluvius tilted **244** *wt* Doing away anticlinal line hollow chalk continuous *2–25w* transverse valleys = every crust part of linear valleys = **252** *1–13w* it appears owing to your dread of Elevation Craters *17–31w* incomprehansible to me: *21–32m, 30u "whole mass", wb* ridge of unstratified rock vera causa **253** *5–9m/?* **254** *14–34m, wb* Make analogy stronger pumping in, instead of out fluid rock **258** *fig.w* good *8–21m* **259** *1–10m* **262** *3–21m (Mantell)/w* What do they say? **264** *27–30m* **282** *zt, wt* Is there not marine animal, case undistinguishable *fig.m* **284** *wt/1–28w* How wonderful that any character of vegetable earth remains – silicification *9–15m, 20–28m* **292** *3–19m/w* All this comes rather flat after first admirable chapters *wb* do p.297 **297** *3–33z* **298** *1–10m/w* Cordillera **308** *9–15m/2–16w* Coast of Brazil Just water & other formations **309** *20–24m/w* Pampas Delta *wb* Has Indian delta been examined – – ● where can I read account? **310** *8–31m/w* very strong & very honest *wb* as long as Didelphys – x Monkey no progression *wb* Man strong fact on opposite side you lean

311 *wt* I think it is an argument for precedence of certain ♣ classes at former times, the precedence of orders now.– as pachyderms in Tertiary – Deer now *11–12?/ 9–17w* do not understand *15m, 25–32m, wb* Galapagos plenty of reptiles *wb* Distribution of animals at present day evidently not owing to mere circumstances: ∴ great lizards not!– **312** *8–17m/w* T. del Fuego **324** *1–11m/w* Unfortunate **332** *wt/1–4w* if not correspond of my short parallel line *4–7m/?* **333** *zt* **338** *7–18m, fig.w* Elevatory *18u "reader"/w* beginners **339** *wt* Is it good paper? *1–5m* **340** *3–15m/w* very remarkable **341** *fig.m/w* very good *wb* very common **350** *zt, 1–12m, wb* arrival of fresh peated matter **360** *wt* good abstract *1–4m, 5–31m/w* Cordillera. Snow hence Metamorphic; not like basalt *zb*✍ **361** *33m/w* wrong reference **362** *5–9m, 10–17m*♦*/11–12?* **363** *wt* Does any one? *4–9m/?* **366** *3–12m/5–6w* St Jago *14–24m/w* wrong *21–33m/!/22u "600|high"* **367** *wt* fragments brought up much more altered *10–23m* **370** *zt* **371** *wt* Wire has been known to crystallize & become brittle from frost ∴ arrangement of particles **372** *1–9m, 11–26m/w* ? would not percolation destroy symmetry? **373** *wt* permeation of solid coral rock by tides *5–8m/6u "sponges", 29–32m* **374** *1–7m* **375** *20–25m* **377** *wt* is this theory or fact *8–13m/10–11?* **378** *29–32m* **379** *1–2m* **380** *wt* Henslow Botany *5–11m* **381** *21–30m/z* **385** *wt* contrast general lowness of Tertiary formations *1–12m* **388** *1–29m, 1–14w* Elementary **389** *13u "visible"/13–22z/w* almost solely elevation because rests on very hypothesis **392** *19–26m/w* Who? **393** *5–8w* Sir J Herschel *7u "infinitesimal"/w* HJS? **394** *11–17m/12–21w* Does it not always appear vice & versa *18–29m* **395** *25m/wt* beneath coast of Chili **408.b** *zt, 1–13m*

LYELL, Charles *Principles of geology* 6th edn, 3 vols; London; John Murray; 1840 [CUL, S] ad, beh, cc, ch, co, ds, ex, fo, gd, geo, gr, h, hy, ig, in, is, mg, mi, no, oo, or, se, sl, sp, spo, t, ti, tm, v, ve, y

vol. 1 NB1 Lyell
Account of Hutton very eloquent – not credit enough; Metamorph – not blame enough –
138 misprint; 155
190 Whole Chapter inimitably good
New Continent –
193 You yourself remark same form has never reappeared – hardly cautious enough.–

201 Cayman Isd
232; 240, 241 Excellent Chapt; 252; 260; 272; 279; 282,5,6; 295; 296; 317; 328; 330; 370; 372; Springs Chapt very ●; 395; 396
NB2 Self
Spec Theory; 134; 137; 154; 193; 209; 230,248 Chapt IX excellent summary against theory of progressive development; 249; 252
Lyell always considers that there is saltus between man & animals –
Chapt XI Showing chasms in Animate world not real – most striking passages pages p.284, 287, 295, 298, 301
392; 414; ♦ 415 Geology

xvi *22m/m* **134** *28–31m* **137** *15m, 15–16u "hippopotamus|only", 21–29m (Strickland)/24u "bear", 31–32m* **138** *20–21m* **154** *22–25m* **155** *wt* some one says plants of six months growth *1–5m* **pl. f190** *wt* New continent **193** *wt* Facility of transport of seeds & not adaptation perhaps causes this *2–26m, 4–8m, 14–15?, 17m, 18m, 19–22m/w* G?? **201** *13–17m/15w* no **209** *19–32m, wb* not sound as species of shells numerous at first commencement of Tertiary **210** *1–33m* **222** *23–24m/!, 24–27m* **230** *4–28m* **231** *17–28m* **240** *28–31m/w* not clear to me **241** *15–25m, 26–34m/34[...]/w* no *33u/wb* not quite accurate: parts of continent **248** *1–24m* **249** *5–27m/w* All this applies only to man as cosmopolite, i.e. civilized *28–34m/w/wb* not man, with such knowledge as he is born with **252** *14–21m/!, 18–19m, 23–25m/!!, 24–25m* **260** *wb* I do not think you clearly enough state that there is no evidence of progressive development like metamorphic rocks that we know, species have successively appeared – but we know nothing of first peopling this planet, like its origin. The introduct of man, only greater change than any species ornithorhyncus **261** *wb* we know that species differ much from each other.– **272** *3–16w*♦ Hereafter enormous area of S. America Tertiary desposits 1800 Tertiary deposits **279** *27–28m/ ?/27u "persuading"* **282** *23–34m, wb* again man as cosmopolite also p.285 **283** *2–8m* **284** *9–24m/10u "with|chasms"* **285** *15u "anterior|man"/w* p.286 *20–21w* Peru *26–32w* raised beaches with cotton thread *wb* What would you say even to American Geologist who said man did not exist, because no remains of Patagonian soil **286** *10–12m/!/11u "at earth"* **287** *3–15m/7–8w* Self **295** *20–23w* possibly many *24–34m/29–30w* Self **296** *1–7w* & as nature of bottom changes different distribution *9–16w* no known relation with respect to change *17–19w* Scicily elevation

Lyell *wb* My theory goes to show that period is excessively long, during which species do not change, because no case of such change in any one structure can be shown **297** *21–24m/w* Self **298** *14–18m/12–22w* add. to this Europe exception & not rule – World simple **301** *28–32m* **317** *12a "in"* the breccia **328** *25w* rain &c &c **331** *wt* Tropical plains *1–2m/?* **370** *24X, wb* Col Jackson describes much dirt & stones with Russian **392** *20–24m/22u "with|the"* **393** *2–5m/2w*◆ ● **395** *wt* abundant in Cordillera *1–3m/w* very **396** *18–19m/19u "many parts"/w* where **414** *10–14m* **415** *23–28m*

vol. 2 NB1 Lyell–; 266 isl N. of Ascension =; 278; 297; 372; 399
NB2 Self
Geology ◆ 106, 279, 447
Spec 416

108 *29–33m* **120** *14–16m* **130** *27–28x/24–28w* incorrect layer **134** *11–16m* **266** *15–16m* **279** *11u "attributes"/w* stronger **297** *23–24x, wb* Most interesting feature omitted of volcanos already in action. **372** *11–13w* V. your Map ?? **399** *1–2m/?d/u "hydrometer"* **416** *27–31m* **447** *7–11m*

vol. 3 NB1 ◆
Where are Wiegmans experiments on plants p.66 Amoenitat Acad * p.204 authority? * 300 *
Lyell p.116; p.127; 157; 200
295 Coral Chapt. Very satisfactory
Have a recapitulating character *⟨he means chapter⟩* on whole bearing of vols to explain present state of earth, which at first every one thinks formed by catastrophe
NB2 Self. Spec The.; 10; 34; 48; 67; 93 to 136; 204; 275; 300; 357
◆ 313 Geolog –

10 *13–19m/15–17w* extra claw *20–32m (Lamarck)/26–28w* weak *wb* no new organs in whole classes **34** *wt* I. St. Hilaire *1–8m/4? wb* G. St Hilaire **36** *15–22m, wb* ? **39** *23–25m/??* **41** *22–25m* **42** *16–20m/?, 20–21m/w* no **44** *25–28m/?* **47** *15–17m/?* **48** *wt/1–28w* surely new Varieties sport, though individuals may be acclimatised in few years *4–6m, 10–34m, wb* Think of all this when writing **49** *1–21m, 28–31m (Cuvier, Dureau de la Malle)* **51** *26–28m, 27–29m, wb* accustomed in early infancy **66** *10–14m* **67** *29–31m (Wiegmann), wb* Where **74** *7–11m* **90** *4–7m* **99** *7–10m* **100** *24–29m* **108** *7–9m* **116** *25–29m/w* ? Beale **118** *wt* XX My Patagonian case Weissenborn on Libellulia Squirrels & ●?? *wb* (a) Why do men in fear herd together – **119** *wt* (a) Why does suffering make animals flock? *wt* Not always of same kind in insects XX *17–18m/x, 1–30w* The useless ones cannot be for killing the animal, or they would have died from want *wb* 2 kinds of migration useful & useless are here confounded **121** *4–6m* **125** *7–8x, wb* X once connected with main by verdant continuous trails. **127** *6–8m/!!/7u "pumas"* **138** *33m (Richardson)* **139** *23–26m (Gmelin), 27–32m, 33m* **140** *wb* do any fish live on seeds? fish eaten by Herons– **146** *10–14m* **157** *1u "Pitcairns"/w* ● **161** *9–17m, 21–24m* **174** *wt/1–26w* The number of years some rare plants have occupied same spots – ? exact spot? argument against this – & the fact on opposite page antagonist principle. *20–26m, 30–34m (De Candolle)* **175** *wb/1–34w/wt* XX would merely affect new countries & new devastations. (seeds in ground part of same class)– in short time struggle must come into play – occupancy can only hold to actual plant or tree, in first seedling struggle must commence – the surrounding land possibly more favourable because leaves of own kind best manure– *3u↔/?* **197** *33m* **200** *7–9m* **201** *4–9m, 17–31m* **204** *2–7m/w* Please tell me authority *7w* Thinks M F. Cuvier **221** *15–24m* **222** *10–14m* **224** *1–11m/5–6?* **227** *5–32m* **228** *1–11m/5!!/wt/1–6w* Let whole world get hotter or colder whole continent or whole islet *27–32m, wb* =islands= Absurd – as we know in every country some new forms can be introduced *15a "marshes"* **229** *wb* from lake in midst of Africa !!!! whence can come lacustrian plants *wb* Form islet, let this become Mountain, whence the Alpine plants?!! **276** *1–3m* **292** *10–31m/22–24w* V. p.297 *wb* Refer to Lunds theory & quote Lyell against it. **293** *wt/1–2w* The cause of this association of iron with limestone & corals – laws of organic forces?? *13–21m/15x* **295** *10–13m/??/wt* What should empty it **297** *1–8m* **300** *24–28m, wb* p.303 do you believe contemporary? **303** *1–13m* **305** *20–23m/23u "a|colour"* **313** *1–6m, wb* as wood drifts by surface currents it may be transported to parts where no sediment is accum **357** *6–8m* **367** *20–22m* **370** *26x/28–30w* Dr Allan p77 **372** *24–26w* at most 30 fathoms **377** *23–25m, 30–32m* **378** *wt* set of little rings *27w* 49 **384** *3–5m/!/4u "supposes"* **388** *6–8m/? 14–17w* does not give as fragments *21–25w* leeward side dead & not growing **391** *11–13m/?* **394** *5–6?* **395** *1–20w* border denuded & real growth of upsurge Corals denuded **396** *24–25w* no! **398** *7–8?* **399** *24–29m* **400** *3c "be"* is

LYELL, Charles *Principles of geology* 7th edn; London; John Murray; 1847 [CUL, I, S]
geo, sp, t

SB ⟨*list of changes from previous editions*⟩
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NB2 97 ice; Species Theory; 83; 105; 125; 134; 156; 177; 589; 591; 592 596; 600; 604; 605; 606; 608; 671; 697 of ♣ next Edition
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174 on changes of climate
393 Means of Distribution
209 *9–10u "sandstone|shale", 14u "300|least", 15u "Vienna|Switzerland", 18u "several|feet", 19u "6,000 feet"* **273** *2–8m* **393** *13–24m, 26–29m, 31–33m, 34–36m* **394** *1–8m*

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p.341 on Geographical Distribution p.341 Japan
p.345 Madagascar – good speculations
p.355 Means of Distribution, p.358 – 365 to p.395.–
p.406 persistence of same Flora in Madeira from Pliocene to present day, shows then separated.– to 431 – Admirable discussion on relations of Fauna & Flora of Madeira & P. Santo to each other & to Europe.–

246 *20u "to|extent"/? (Geoffroy and Lamarck)* **291** *24u "germ cells"/w* no **307** *26–28m,/?* **308** *13–16m* **309** *33w* short **317** *3–8m* **323** *26–37m (Linnaeus)* **324a** *38–41m* **338** *12–39m* **339** *38–39m* **341** *27–35m (Wallace)* **343** *21–24w* chance migration by sea *26–31m* **345** *28–37m* **355** *4–10m/11w* Singapore *19–24m* **358** *3–5m* **359** *17–22m* **365** *1–3m* **366** *16–20m* **369** *17–23m* **370a** *40m* **371** *26–28m* **377** *22u "New Holland"* **380** *30–39m* **387** *32–35m* **391** *7–13m* **395b** *36–37m (Henslow)* **406** *7–11m (G. Hartung), 22–24m* **408** *11–15m* **410** *4–9m, 35–37m* **414** *30–33m* **418** *31–39m* **419** *10–21m (Hooker)* **420** *21–25m* **421** *10u*♠ **422** *28–34m* **423** *14–21m, 26–36m* **426** *7–17m* **427** *1–4m, 21–28m* **428** *1–5m, 22–29m* **429** *10–16m, 17–32m/w* well stocked Birds of Galapagos; the case I give of shells & of true genera **430** *25–31m* **431** *26–32m* **469** *27–30m* **471** *36–38m (Brace, Wallace)* **473** *29–35m* **474** *27–35m (Wallace)* **476** *27–30m/28u "to vary"* **478a** *38m/w* Error **479** *27–38m* **481** *24–29m* **482** *8–18m, 19–31m/28u "Gaudry's memoir"* **483** *31–34m* **484** *8–13m (Gaudry)* **485** *18–19m* **487** *33–36m* **488** *9–12m* **489** *14–17m, 20–24m* **490** *27–31m* **491** *7–12m/9u "higher|organisation"/w* What is higher *21–29m*

LYELL, Charles *Principles of geology* 11th edn, 2 vols.; London; John Murray; 1872 [CUL, I]
af, geo, h, hl, t, v

vol. 1 NB 149; 159; 162; 212; 342
℘
149 *16–21m/16–17u "primordial|Barrande"/20u "Orthoceros", 27u "chambered|Orthocerata"*
159b *33–40m (Owen)* **162** *14–21m* **163** *7–11m*
212 *31–37m* **232** *5–9z* ℘
342 *4–6m (Jamieson)*
℘

vol. 2 NB Resemblance from similarity of exposure – p.295 in Dogs –
p496 Difficulty of a higher grad from lower
Is not a very cleverer man a sight higher than a dull man? Is not that power of a man work of ● or power of Brain & wd not the replication○ of the degree of cleverness ultimately produce a great result?
℘
295 *9–26m (Flower and Wallace)*
℘ **396** *11–13m (Forbes)* **496** *31–33m*

LYELL, Charles *A second visit to the United States of America* 2 vols.; London; John Murray; 1849 [CUL]
ad, beh, ci, ex, fo, gd, geo, mg, sp

vol. 1 NB Read second time
p.29; p.303; p.330; p.348; p.351
SB 29 Lat 43° 6' S limit of Boulder Deposit
303 Many genera of Birds & Mammals with representative species on two sides of Rocky M
330 Birds & Squirrels having habit of burying acorns allude in my Staffordshire case as not applicable to it
348 No less than 3 species of Horse in N. America

29 *28–31m* **303** *21–25m, 27–31m* **304** *1–12m, 15–25m* **330** *19–26m* **348** *18–22m* **351** *3–27m* **366** *14–17m*

vol. 2 NB1 250 Rate of deposition of Delta.
NB2 293◆ Migration; 294◆
150◆ Cirripedes; 270; 312
Abstract
p.270 Dr D. Owen says newly introduced Plants, first overrun the country & then become scarcer (Ask A. Gray)
312 Footprints of Air-breathing Reptile in Carboniferous Rocks
250 *9–12m* **251** *12–17m* **270** *19–23m* **312** *3–7m* **313** *25–29m*

LYELL, Charles *The student's elements of geology* London; John Murray; 1871 [CUL, I]
ex, fo, gd, geo, ig, no, sp

NB 160 Mammals before & after glacial period
348 Muscle chalk absent✍ in England
357 intermediate ♣ Caspian✍ beds
361 Reptiles in Trias very rich
467 absence of Cephalopoda in Upper Cambrian
470 fossil of Longmynd Groups –
Read Ch VII p263

xii *5–6m, 14–16m* **xiii** *38–39m* **xv** *9–11m* **xvi** *33–34m* **160** *1–11m* **348** *23–26m* **356** *11–16m* **357** *10–33m, 35–36m* **358** *20–27m* **359** *1–2m* **361** *1–4m (Meyer), 22–24m* **467** *33–41m (Barrande)* **470** *21–27m*
℘

LYELL, Charles *The student's elements of geology* 2nd edn; London; John Murray; 1874 [Down, I]

LYELL, Charles *Supplement to the fifth edition of A manual of elementary geology* 1st edn; London; John Murray; 1857 [CUL]
gd, geo, ti

1 *15–17m, 18a "older"* crag **2** *40–43m* **3** *16–21m* **5** *33–38m/35u "Norwegian|Lemmus"/w* Does Lemming inhabit Alps. Vide Waterhouse **6** *17–21m, 25–28m (Falconer)* **9** *21–29m/w* How blended Eocene & Miocene **11** *10u/7–10w* What age of oldest Elephant *11–16m, 34–35m, 37u, 38u "Pliocene"* **12** *22–25m/23u "partly|period"/18–25w* no one dreams sea acting all time **14** *30–31u "no|marsupial", 32–38m* **15** *3u "Triconodon"/w* Marsupial *40u "probably marsupial"* **18a** *45–49m* **20** *27–31m/30u "range|marsupiala", 43–45m* **22** *21–23m (Falconer)* **23** *10–13m* **23b** *15–18m* **24** *8–11m, 15–17m, 17–21m, 23–28m* **25** *2–4m, 6–7!/7u "climatal", 13–24m/15–17?, 34u "St Cassian beds", 37–39m* **28** *26–28m, 29–31m, 35–38m* **29** *18–21m (Lindley), 44u "Palaeozoic"/wb* not diphthong **30** *5–8m, 17–19m/19u "27", 20–24m/20u "beds"/23–24m, 28–33m, 36–43m* **32** *29–42m* **33** *39–46m* **34** *17–25m*

LYELL, Charles *Supplement to the fifth edition of A manual of elementary geology* 2nd edn; London; John Murray; 1857 [CUL]
ex, fo, geo, ig

NB ◆ p14 intermediate forms
p30 Old N American Mammal Trias or Permian
✍ Letter from Lyell – new proof that Dromotherium below ● – perhaps not actually Permian same discovery sinks the level of Hitchcocks Birds Tracks
14 *9–11m (Falconer), 10–23m/16u "Rhinoceros|Anoplothera"* **30** *5–29m/10u "Chatham|Carolina"/19u♠, 26–29m* **33** *25–28m* **35** *19–24w¢¢* **37** *35–39m* **39** *wt* New edition

LYELL, Charles *Travels in North America* 2 vols.; London; John Murray; 1845 [CUL]
af, cc, ch, ex, fo, gd, geo, gr, h, no, se, sp, t, tm

vol. 1 NB1 138. any extinct Gnathodons?? or Fulgur??

Lyell says Cretaceous & Eocene quite conformable & similar substances, so that most difficult to separate.
⟨*drawing of a continental shelf or bank of slow-moving river*⟩
NB2 Species Theory ; p.5; p.7; p.9; 10; p.20; 52; 55; 67; 78; 87; 134; 137; 168; 173; 178; 198; 202
Geology S. America
Mastodon ♣ at Niagara ♣; p.164 Mastodon &c Cursed Horse Tooth; 201 Man skeleton in Brazil
p.48. subsidence Glaciers-period.
SB ❑β
5. Daisy will not live in U. States
7 35 per cent of shells of Massachussetts identical, many representatives
10 On the curves of cold being same at Glacial Epoch as now
20 on certain shells having wide geograph & geotropical Range
52 on time since Niagara formed (since Glacial?) 67 Mastodon since Glacial
78 Of New Jersey Cretaceous shells only 4/60 identical, but many representatives. Reptiles analogous – some of them identical have greatest vertical range
87 Devonion & Silurian Strata 4 1/2 miles thick
134 shells analogous to Suffolk Crag p.138. only 9 Miocene identical The shell Fauna then distinct of America & Europe (& in Chalk
178 Of Eocene shells 7/125 identical. Now I fancy in S. States very few identical or more but many representatives
202 Number of F.W. shells in U. States

5 *21–24m* **7** *3–6m (Gould)/w* now are these 70 Glacial *13–15m, 16–18m* **9** *1–3m, 6–8m/w* against seeds transported **10** *14–19m* **20** *16–22m* **48** *3–10m/4"..."* **52** *3–19m* **54** *4m* **55** *2–4m* **67** *8–10m, 11–16m* **78** *7–9m, 26–27m* **79** *1–3m/w* V. proportion of living *8–9m, 20–24m, 27m/→* **80** *7–11m, 15–18m, 20–24m, 25–26m* **81** *10a/u "corals|insects"/5–14w* Satularia very like of V. Diemen's Land ?!? *14m/u "arctic|antarctic"/w* ?!! no *wb* Dr Beck Margarita is found in ♣ Antarctica, which is genus not found in Tropics **87** *22–25m/w* = 4 1/2 miles **134** *12–13m/12u "very|those"* **136** *23u "147"* **137** *4–5m/4u "close affinity", 26–27m* **138** *2–5m/2u "mine"/5u "with|species", 7u♠/8–10m♦/8u♠, 14–17m, 18–21m* **151** *2–5m/3w* Breath *9u "absorbed"/m/?, 11–14w* The absurdity of arguing from one position **168** *3–7m* **172** *14–27m* **173** *1–9m* **178** *21–23m, 25–27m/x, wb* I forget how many Miocene common to

Europe & America – see to this– **181** *1m/?* **185** *18u "depressing|spirits"* **198** *19–22m* **202** *15–20m*

vol. 2 NB Sp Theory p.19; p.30; 48; p.50; p.52 54; 59; 131; 135; 152; 154; 158; 179; 187; 188; 190; 255
Geology; p.60 Mastodon & Elephant with Recent shells
p.99 – Subsidence during ice-period
SB ❑β
19 Carboniferous shells some identical, & most closely related
35 Proportion of Trees on Indian Mounds
Plants many identical, I think not surprising, when land in fact continuous
2/3 identical of Coal Plants (See Below)
51. Silurian shells not many in common – so with Russia. Exploded doctrine
52 Orthis still living in Mediterranean, but very rare – 54 Causes of absence of land-plants in Silurian – Good discussion –
152. Lat 44°.25' most S. Lat in which Arctic shells have been found
155 Arctic shells have retreated 14 degrees of Latitude
158 Lingula. still living, in oldest Silurian Rocks
179 Carboniferous strata of N. Scotia 4–5 thick p187. Ten layers of upright trees
p187 37/48 Plants identical. Of 35/53 of Coal plants of U. States, further S. are identical.

19 *6–10m, 14–19m, 22–25m, 26–27m* **20** *5–8m, 13–15m, 17–21m (Brongniart)* **21** *8–16m/13u♠, 18u "genera", 20–21m* **30** *6–10m* **35** *12–27m* **37** *20–21w* No **48** *19–27m, z/wb* **50** *22–26m* **51** *3–10m, 13–20m (Murchison and De Verneuil), 21–25m* **52** *10–21m/w* ie rare genus **53** *17–19m* **54** *5–6m/?, 11–13m, wb/↕w* Old formations are oceanic; because these have the best chance of being thick & last brought up; this rests on idea of movements being widely extended & continuous, which is also proved by continents. **55** *1–9m/w* There must have been a considerable continent.– *12–16m, 17–20m, 22–26m, 27→* **56** *12–15m (Murchison and De Verneuil)* **57** *1–3m* **59** *14–17m* **99** *1–17m* **131** *1–8m, 10–15m, 20m* **135** *24–26m* **152** *3–5m* **154** *9–13m/w* p.149 & number of species of genus **155** *1–2m/wt* ie. Arctic Climate has retreated at least 14 degrees of latitude – effects of changes of Geography – not connected with central Heat **158** *3–7m,* **179** *24–27m/→/w with vertical trees* **181** *20–22m* **187** *8–14m, 24–25m/25u "ten|levels"* **188** *11–15m/w* important as showing former communication *19–27m* **189** *1–6m* **190** *25–27m* **255** *1–27w* Mainly ♣ 12 divisions judging from fossils corresponding to Upper & Lower Silurian formations *many lines in table marked; subdivisions 24–28 bracketed.w* Devonian

LYELL, James Carmichael *Fancy pigeons* London; The Bazaar Office; 1881 [Down]

LYMAN, Theodore *Ophiuridae and Astrophytidae* Cambridge, Mass.; University Press; 1875 [Down]

NB O/

LYMAN, Theodore *Supplement to the Ophiuridae and Astrophytidae* Cambridge, Mass.; University Press; 1871 [Down]

NB O/

LYON, W.P. [as "Homo"] *Homo versus Darwin, a judicial examination of statements recently published by Mr. Darwin regarding "the descent of man"* London; Hamilton, Adams & Co.; n.d. [Down]

title page *wb* By the Revd. William P. Lyon (near Norwich)

McALPINE, Daniel *The botanical atlas, part 1* Edinburgh & London; W. & A. Johnston; 1882 [Down]

McALPINE, Daniel *Zoological atlas* Edinburgh & London; W. & A. Johnston; 1881 [Down]

MACAULAY, James, GRANT, Brewin and WALL, Abiathar *Vivisection scientifically and ethically considered* London; Marshall Japp & Co.; 1881 [Down, I by H. Gillespie] ℘

McCLELLAND, John *Indian Cyprinidae, part 2* Calcutta; Bishop's College Press; 1839 [CUL, I]
f, gd, oo, no, sp, sy, t, tm, v

NB1 A Good many fish – semi-alpine 4–500 feet nevertheless no species similar to European– I believe – V. Synopsis
Contrast with Hope's paper on insects → especial contrast with Water beetles, I believe,
Good contrast with Fish of Pacific & Indian Oceans–
How is this in N. America?–
NB2 The Commencement of this Book good to consider when treating Quinary System – It must be considered
229; 230; 232; 237; 266; 364; 385; 399; 458; 452
SB 230 Fishes bright to be caught
266 on domesticated Fishes of India varying so much – Ch 1 or 2
262 On Salmonidae in India– place filled by Cyprinidae

229 *13–22m, 20–22m* **230** *6–13m/16w* see p.229 *19–23m/19–26w* I must utterly deny this.– If this could be passed – farewell my thesis– *27m/w* Nothing new spec **231** *3–6m, 18–20m* **232** *1–3m* **237** *23–27m* **266** *12–13m/w* V. p.313 *26–28m/w* p.268 **268** *4m* **313** *15–19m/17u "form"* **pl. 46** *wb* Perilampus perseus **365** *23–28m* **385** *4–9m* **399** *13–15m* **452** *1–7m (Hügel, Heckel)* **458** *22–27m/w* not so much destroyed & therefore not become so prolific **459** *1–3m, 17–21m* **469b** *3m, 4m, 6m, 7m, 10m, 12–19m*

MacCULLOCH, John *A geological classification of rocks, with descriptive synopses of the species and varieties comprising the elements of practical geology* London; Longman, Hurst, Rees, Orme & Brown; 1821 [CUL, S Chas. Darwin June 1837]
geo, is, mi

MACCULLOCH

NB 185 to 188; 199; 270; 332; 349; 351; 364; 376; 471; 475; 528; 531
Ap 21/57 ⟨CD?⟩
Macculloch from p– to p will be worth looking at before writing Cleavage
185 *22–24m* **187** *8–14m, 16–22m* **188** *8–13m, 15–20m* **189** *1–7m* **199** *14–21m/17–21m, wb* ?Is quartz ever fluid from Heat even in granite **233** *5–7m, 18–21m* **244** *9–14m* **270** *4–10m, 11m, 13–23m, wt* & see p273 & 274 **273** *6–14m* **274** *11–18m* **301** *19–22m* **332** *12–20m/w* like F. Islds. **349** *18–24m* **350** *20–24m* **351** *13–18m* **364** *11–24m* **365** *4–6m* **376** *7–13m* **471** *2–4m* **475** *13–19m* **528** *13–20m* **531** *wt* Make note to Obsidia paper say it is remarkable that no one has hereto stated the fact of separation *5–14m, 20–24z*

McCLINTOCK, Francis Leopold *A narrative of the discovery of the fate of Sir John Franklin and his companions* London; John Murray; 1859 [Down, I by publisher to Mrs Darwin]

NB p16; p20; p102
16 *11–20m* **20** *24–27m* **102** *22–25m*

MACGILLIVRAY, William *A history of British birds* 5 vols; London; Scott, Webster & Geary; 1837–52 [CUL]
af, beh, br, cc, ch, cs, ds, ex, gd, gr, hy, mg, no, oo, phy, rd, sy, t, ta, tm, v, wd, y

vol. 1 NB do show extinction not so easy extinct in England Capercailzie recently extinct, Bustard
p.5; For Pigeon – 25 – Skeleton; 90; 101; 119,20; 153; 162; 173; 192,7; 225; 249; 265,6; 270; 274,8 – Pigeons to 289; 331; 398; ♦ Read from 90 to 96 well; 423; 501; 505; 512; 529 to 534; 538; 569; 571; 604
269 Scutella; 231 Skeleton of Pigeon; 285 number of seeds in crop; skeleton♦; Black grouse 157 superorbital space becomes red in Breeding season
SB 90 – ostrich rudimentary tie
119 Disputes ring-neck pheasant being a Hybrid
153 variation in intestines in length of Black Grouse
162 Q Black & Red Grouse crossing
249 In Pigeons Head & Bill chief characters of Family
270 On Birds having Beak crusted with earth or mud
275 On ♣ House Pigeons taking to Rocks – taming Pigeons
285 on number of seeds in Crop of Pigeon
289 On C. oenas building in Rabbit holes
398 Cases of natural pairing of Green-Finch & Gold Finch Q
422. Abnormal characters in Cross-Beak varying Q
501 On Faroe Raven (I believe quoted)
512 NQ Ravens build in cliffs in N., in trees in South p604 So starlings in Hebrides
538 Rook varying much in Beak.
569 Eggs of Magpie varying much shape, size & colour
570 Magpie getting 3 females – another case of size Q
157 supraocular carmine space brighter red during breeding season.–

5 *18–22m/w* nearer literal relationship **24** *27–28m* **25** *11–12m, 16–17m* **26** *1u "sacral", 33–36m* **27** *fig.w ⟨naming of parts of skeleton⟩* **28** *11u "manubrial", 22u "crest | ridge"* **29** *9a "is"* clavicle **31** *6u "ilium", 8u "pubes | latter"* **34** *20–34m* **75** *4–6m/4u "a large", 19u "accessory plumage", 26–28m/26–27u "to | length", 28u "in feather"/28–32m (Richardson, Audubon)* **90** *19–20m* **plates** *w ⟨parts of skeleton⟩* **101** *4–6m/5u "second | quills", 22–24m, 26w* Crows **106** *7–11m* **111** *25u "twelve"* **118** *13u "Length | inches", 14u "tail 18", 14–17w* say 18 to 21 tails **119** *3u "26 inches"/4u "tail 11"/3–5w* say ab 12 inch *8–10w* analogue of P. torquatus *12–14m, 15–18m/17u "very | varieties"* **121** *10u "tail 20", 14–15m, 18–20m* **122** *15u, 19–22m, 31–32m/31u "Phasianus torquatus"* **151** *2–3m, 34–37m* **152** *28–31m* **153** *28m* **154** *32–37m* **157** *34–38m, 35–38m/37u "a deeper red"* **158** *3–7m, 7–14m, 21–26m* **159** *14–16m, 18–19m* **161** *28–30m* **162** *6–10m/*Q **169** *12–13u "breast | white", 16–17u "breast | barred"* **172** *23–24u "breast | chestnut"* **173** *3–7w* proportions different *9w¢¢, 12m/w¢¢, 20–28m/23u "lighter red", 26u "lighter", 27u "but duller", 30u "is | brownish", 31w* see over **174** *2–3*Q *5u "lower | are", 6u "spotted | barred", 11u "less | white", 21–25m/22u↔/24u "tips | feathers"* **184** *11–15m* **185** *25–26*Q **187** *14–19m* **193** *5–14m* **197** *20–27m* **207** *17–19m* **216** *32–35m* **219** *35–37z* **225** *3–5m* **249** *13–15m* **251** *22–24m, 25u "seven dorsal"* **257** *11–12m, 37–38z* **265** *7–10m* **266** *16–18m* **269** *3u↔, 11–16m/14u "the | fourteen"* **270** *34–36m/w* seeds **274** *36–38m* **275** *15–17m/x✎, 37–38m* **276** *8–18m* **277** *24u "James Barclay"* **278** *16–19m, 22–23m* **279** *15u "Mr Andrew Duncan", 16–18m/17u "tamed", 32–33m* **281** *9u "three | long"* **282** *24–27m* **283** *13–14m/14u "is | feet", 31–32m (J. Smith), 36–37m* **284** *5–8m* **285** *17–19m/18u "1000 | odds"/19u "510"* **289** *31–35m* **331** *14–19m* **352** *21u "in | which"* **370** *14–18m* **372** *5–8m* **373** *17–19m, 21–24m* **375** *30–34m (Temminck)* **398** *9–11m, 12–13*Q *20–23m* **422** *34–36m/*Q **423** *1–3m/*Q *29–37m* **428** *1–4m* **501**

8–10m, 15–17m, 20u "Feroe Isles"/20–24w see in Travels which I have, what is said about this. *26–28m* **505** *36–38m* **512** *10–12m, 13–14m* **529** *14–15m, 17–20m/*Q **532** *4–5m, 30–31m* **533** *21–22m* **534** *1–4m, 11–13w* This is good case of doubtful species *13–17m, 18–21m, 21–22m/21u "being | wilder"/22–23*Q *24–26m, 25–27m* **538** *9–12m/9u "remarkable diversity"* **569** *1–8m* **570** *34–38m/35u/*Q **571** *10–11*Q *11–14m/12–13u "saw | eggs"* **572** *32–34m* **577** *zb* **599** *10–14m* **604** *16–27m*

vol. 2 NB1 451 Crested Tit female has crest smaller
417 Crested wren crest paler
NB2 Upon the whole little variation in Birds except rarely tendency of colour & size & proportions. No races
p.53; 84; 92; 91,6; 98; 102; 104 transportat of seeds; 113; 118; 125 – transport of seeds; 130; 138; 143; 172; 245; 302; 438; 446; 483; 484,5
185 Anthus breeding flight; 354 do better Q
52 Dipper; 83 T. merula; 100 P. torquatus
SB ❑β
92 Thrush & Blackbird pairing in Nature Q
96 Nestling Black-birds know cry of danger; 99 crowing like a Cock
104, 125 Disbelieves strongly that Birds disseminate for never but ♣ twice having f any. viz Mountain Ash
172 ♣ Eggs of Alauda arvensis varying greatly
438 Tomtit feed their young 475 times in day on caterpillars Q
483 ♣ Doubt about distribution of Motacilla alba & Yarrelli, after comparing French Birds

27 *6–17m/7–9w* Voice Muscles **29** *17–24m, 22–24m* **52** *31–35m, 31–33m* **53** *3–8m, 22–25m* **55** *14–20m, 31–35m* **84** *1–4m* **91** *30–33m (Blyth)* **92** *13–18m*Q **96** *7–11m, 13–16m* **97** *24–28m* **98** *14–19m* **99** *10–12m* **100** *17–19m* **102** *26–28m* **103** *7–12m* **104** *14–20m/19–20u "which | intestine", 30–33m* **113** *5–12m/6w¢¢, 7–12w* proportions vary **118** *8–15m* **125** *9–17m/11u "sixty | various"* **130** *14–21m* **138** *31–32m* **143** *28–34m* **172** *4–10m* **185** *33–36m* **188** *16–21m*◆*/16u±* **223** *16–18m* **245** *14–15m* **256** *2–5m*◆*/3u "much | frequent"* **302** *7–9m* **329** *24–28m* **354** *11–16m* **438** *36–38m/*Q **446** *24–27m, 31–33m* **451** *27–28m* **460** *13–17m* **461** *18u "of | fable"* **483** *11–26m* **484** *29–34m* **485** *30–33m*

vol. 3 NB1 548 on making preparations of Digestive organs.
NB2 11; 17; 36; 39; 59; 60; 113; 140; 187; 208; 215; 224; 250; 256; 299; 300 rate of flight; 329; 351; 376; 459; Owls prey on shrew–480; 535; 560; 591; 599; 607; 625; 700; 713; 714; 717; 721; 730; 745,46
SB ❑β
17 Beak of wren variable; 36 Creeper do
140 American Cuckoo hatching young successfully Q
187 Scutella in Buzzard variable
215 Eagle carrying & dropping Pig alive
225 variation in wings of Tracheae & intestines in Sea Eagle p250 p329 in Caeca intestine p351
257 soles of Hawk crusted with mud
300 Peregrine Falcon does not much exceed a Pigeon ✍ in rate of flight
535 Waxwing – the wax-like terminations variable in number.– Abnormal variable Q
560 Swallow lateral tail-feathers more or less elongated do Q
Swallows entombing Sparrows Q
599 Disputes Swallow Q gluing materials together 625 Q present in Swift X✎
736 on Bird carrying Q egg from nest to prevent discovery

11 *17u "Furnarius"/17–18w* variable in species **17** *16–19m* **22** *1–19m, 21–30m* **23** *9–11m (Weir)* **24** *7–8m* **36** *8–11m* **39** *20–23m (Audubon)* **59** *7–11m/8w* differences *25–28m/25–26w* diffs. **60** *26–29m/w* singular organ presenting differes **61** *21–22m* **79** *5–7m* **83** *3–5m* **84** *23–26m/26u "till | sonorous"* **85** *5–8m/7–8u "feathers | crimson"* **87** *8–11m/9u "crown | crimson", 29–30m* **88** *8–18m, 24–30m, 25u "vibrates | tree"* **89** *30–34m, 32u "amatory performance"* **94** *4–7m* **102** *23–24u±* **113** *11–18m, 29–34m*◆ **121** *24–27u±* **122** *15–17m* **124** *20–23m, 28–37m, 33–37m* **125** *18–26m* **126** *21–27m* **129** *16–25m* **133** *18–26m* **139** *28–30m* **140** *3–6m* **187** *14–16m, 19–30m* **208** *30–34m* **215** *8–13m, 14–17m* **224** *23–34m* **225** *10m, 12u "scutella", 13–19m* **250** *27–35m* **257** *28–29m* **299** *1–20m* **300** *19–21m* **329** *1–10m* **351** *12–16m, 20m* **376** *31–37m* **459** *32–37m (Bonaparte)* **480** *3–5m* **502** *9–10u "head | black", 16–18u±/w* female barred on parts inferior **535** *13–14m, 19–21m/*Q **560** *21–22m*Q **591** *24–34m* **599** *2–3m/2u "no caeca", 35–38m* **625** *31–37m 626 8–12m* **700** *5–11m 713 2–4m* **714** *36–38m* **715** *1–3m, zb* **717** *15–17m* **745** *15–16u "neglected | stranger", 18–21*Q *20–22m, 21u "being convinced", 27–29m/27u "The | larger"* **746** *2–3u "head | white", 5–9u±, 11u "coverts"/w* parts of wing *14–16*Q *16u "throat | the", 19u "The | white", 32–37m*

vol. 4 NB ◆ 371 No difference in summer & winter Plum. of Snipe
SB1 ❑ℜ
xiii,iv,viii; 89; 155; 206; 309; 370; 422; 446;

MACGILLIVRAY
476; 572,3,4; 593; 606; 611,14,17; 627; 632; 665; 687
SB2 ❑β
p.89 Remarkable variation in Beak of Plover p206 do in Tringa p370 Snipe
pxx♦
155 do in Oyster catcher perhaps case of abnormal varying Q
422 several cases of American Bittern shot in England pxiii, xiv, xviii other American Birds.
446 Q Herons building in trees, on rocks, & on heathy ground
573 Geese & Ducks all blend together, might be left in one genus. Flamingo modified form
593 thinks Anser forms ancestor of domestic goose
655 variations in internal organs
687 var. in number of tail-feathers in Swans

xiii *25–26m* **xiv** *9–10m/w* 2 **xviii** *6–7m/w* 3 **23** *33–38m (Temminck)* **33** *15u "some|polygamous"* **89** *19–23m* **103** *4u "scarcely|their"* **109** *3–4m/3u "males|females"* **155** *6–15m/8–9*Q **171** *16u "Female|lighter", 17u "more grey", 21u "the|and"* **172** *8–16m* **173** *28–30m* **177** *30–38m/35–36u "nature|birds"* **178** *17–20m* **180** *1–5m/4u "May|June", 6–9m, 30u "five|six", 31u "about|ounces"* **181** *6–8m, 10–13m, 15–23m, 21–22m* **187** *20m* **206** *14–18m* **309** *24–27m* **370** *35–37m* **371** *3–8m, 34u "zigzags along", 35u "zoo|zee"* **372** *4u "Air-goat", 16–17u "amuse|more", 25–29m/25–26u "We|has", 27u "by|only"* **422** *5–21m/9–12w* American Bird **446** *12–14m, 33–37m* **476** *16–20m/w* wader very wide Rangers **537** *27–28m/27–28u "betaking|ease"* **545** *24m* **550** *35m, 36m* **572** *3–7m* **573** *18–29m* **574** *17–19m* **576** *13–15m* **580** *18–24m* **587** *25–27m* **593** *23–28m, 30–35m* **606** *27–30m* **611** *25–31m* **614** *24–27m* **617** *27–34m* **627** *27–29m* **632** *17–39m* **639** *18–21m/19u "obtuse|knobs"* **651** *23–27m/*Q **665** *10–14m/*Q **671** *11–14m* **678** *38–39m* **687** *9u "eighteen|feathers", 12–15m, 16u "twenty"*

vol. 5 NB Lestris, Gulls & Terns, female like male, except generally smaller – very white Birds – Oceanic
p.226 Princeps tuft on Head & Raff in female rather smaller
228 Merganser crest do
Puffin, Razor-Bill, Cormorants, Uria, Gannet males = females
70 Double-Moult of Pintail within less than 2 months
223 Merganser Moults & makes an appr to female
(reckoned one of most extraordinary facts in Nature)

31–40 ♣ tooth-formed♦ conical reversed teeth Merganser first Entry
SB1 36; 39; 69; 64; 58; 51; 38; 59; 114 wd fly to water & might be killed there.; 205; 247; 255; 272; 279; 500; 518, 546 vary same way in same genera; 550; 577; 596
SB2 ❑β
36 Wild Duck, thinks flight 100 miles per hour
69 Pintail Teal & Wild Duck (p38 seeds ♣ feed on p64 other Ducks p.114 p51/58/six species of Ducks p255 Even Grebe eat seeds. 272 do 278
89 Wigeon has bred with Pintail & Common Duck
247 Grebe, tail a mere tuft of down. How is Coccyx – see Brit. Mus.
518 variation with age & almost disappearance of hind Claw in Kittiwake
550 change in Stomach of Raven when kept on vegetable food, & so in Gull, as I understand in times of year, when it feeds on seeds.
577 colour of outer Primaries vary in same way in 2 species of Gulls & in in allied Gavia p.596

34 *6u "and|coloured", 10u "speculum|male", 23u "24th|May", 28u "23rd", 30–34m, 30u "6th|July", 34u "10th", 31–32w* about 3 months **36** *8u "Seeds|gramineae", 30–33m* **37** *1–6m* **38** *31u "and|spawn"* **39** *22–26m* **51** *36u "seeds|grasses"* **58** *10u "aquatic|seeds"* **64** *4u "seeds|gramineae"* **69** *4u "seeds and"* **70** *2u "by|August", 8u "of|September"* **71** *8–11m* **73** *34–38m* **89** *14–17m* **112** *20–27m* **114** *29–32m (Temminck)/30u±* **129** *10–16m/12u "with orange"/13u "bluish-white patch", 17u "plumage|blue", 20–21u "plumage|black"* **134** *13u "unguis", 14u "sides|orange", 15u "upper|yellow"* **140** *13u "upper|yellow"* **199** *13–16m/14–15u "conical|backwards", 28–31m* **205** *26–30w* It might be worth examining note *30–33m, wb* Goosander: ♣ M. serrator Dundiver: M. castor or M. Merganser **207** *18u "head|black"* **208** *5u "bill|duller", 6u "reddish-brown", 8u "upper|grey", 10u*↔ **210** *31u "scapulars|long"* **211** *22–25m/25u "scapulars"* **213** *20–22m/20–21u*↔ **214** *27–33m* **223** *17–21m* **247** *31m/w* How are Coccyx **255** *35–36m* **266** *31–33m* **272** *10–11m/10u "seeds"* **279** *7m* **326** *9–10u "a|white"* **327** *7*Q *11–13w* see Grebe p.107 *13–16m, 24–27m/24–26u "Eye|half"* **328** *2–5m/*Q **329** *10–11m, 12*Q *14–16m (Yarrell), 19–20m* **330** *22–24m/*Q **331** *12u "prevailing|white", 17–19m/18u "plumage|on", 19–22m* **436** *34–39m/35u "body|pale"* **500** *34–39m* **508** *17u±* **509** *1u "Young|at", 2u* *"plumage|brownish"* **515** *18u "black|grey", 20–21u "except|grey", 22u "head|pure"* **518** *1–15m* **525** *19–25m* **546** *25–30m/27u "unless|quills"* **550** *19–22m* **577** *34–37m/36u "the|primaries"* **584** *15–18m* **585** *3w* L **596** *11–14m*

MACGILLIVRAY, William *The natural history of Dee Side and Braemar* ed. Edwin Lankester; London, for private circulation; 1855 [CUL]
beh, dg, gd, is, oo, no

NB 176; 310; 387; 388; 412; 462; 468; 470; 474; 476; 480; 482; 487
SB ❑β
310 on massive mountains descend lower than on isolated mountains; & sometimes will be quite absent on such isolated mountains – Perhaps shows that a mass of same species necessary to keep up stock.
474 Deer swimming for isld 12 miles distant
476 Degeneracy of Deer owing to best Stags being killed

176 *10–12m* **310** *19–32m* **387** *22–23m* **388** *29–31m* **389** *5–8m* **412** *11–14m/11u "var. scotica"* **462** *2–7m (Bonaparte)* **468** *7–15m, 18–21m* **469** *30–33m* **470** *6–9m* **474** *19–21m* **476** *16–20m, 28–36m* **480** *33–37m* **481** *14–17m* **482** *20–22m* **487** *29–35m*

McINTOSH, William Carmichael *A monograph of the British Annelids* 2 vols.; London; The Ray Society; 1873–74 [Down]

vol. 1, NB 3
2 *36–43m* **3** *1–5m, 11–15m, 20–25m, 27–32m*
vol. 2 ℘

MACKINTOSH, James *Dissertation on the progress of ethical philosophy* 2nd edn, preface by W. Whewell; Edinburgh; Adam & Charles Black; 1837 [CUL, S]
beh, h, he, t, v, y

NB Whewells Preface good Abstract
56 to 68; 97; 103; 113; 129; 151; 152; 164; 188?; 194; 196; 200 The remarks on Butler contain the cream of Sir J's opinions; 224; 231; 233; 234; 239; 240; 248; 251; 254; 255; 257; 261; 262; 265; 272; 326; 328; 333; 346; 348; 356; 359; 364; 368; 375
16 ought 231 Man Chapt
377; 380; 382; 397

16 *3–6m* **41** *4–5m/!?/5u "moral sense" "invariably", 11–14w* but why the separate parts? **56** *6–11m, 20–21m* **57** *3–4m, wb* A pointer ought to stand **60** *16–18m/?* **62** *8–12m* **66** *1–4m* **97** *1–2m* **103** *4–12m* **113** *1–11m* **128** *w◊* **129** *15–20m/11–31w◊, wb* even our true taste is pleasant ♣ according to habit **131** *5–27w◊* **135** *13–17w◊* **141** *8–26w◊* **151** *11–26m* **152** *1–8m, 12–13m, 17–20m, 26–30m* **153** *1–11m* **164** *22–26m* **188** *16–28m* **194** *1–7m/4–5?, 12–14"..."/m/w* if so, my theory goes.– in child one sees pain & pleasure struggling **196** *9–13m* **198** *11–15m, wb*✍ How can cowardice, or avarice or unfeelingness be said to be dispositions leading to action yet conscience rebukes a man, who allows another to drown without trying to save his life.– **199** *24–27m/!/26u "desire", 26u "will"/27u "conscience", 29–30m* **200** *30u "with direct"* **201** *1–2m/?/1u "action|will"* **224** *9–18m (Hume)* **231** *11–14m, 15–17m* **233** *11–14m* **234** *2–12m/4–7w* common to animals **240** *1–7m, wb* Try whole question with the breaking mere rule of etiquette **248** *6–10m/w* Try theory of place in brane **251** *33–35m/w/wb* See Brit Museum **254** *21–24m (Hartley)/23u "perception and emotion"* **255** *6–15m, 16–25m, 26–31m (Lord Kames)* **256** *13–18m* **257** *18–29m/18–22w* common to animals hence love of Place.– x *wb* x will not explain love of parent to child – except hereditary.– **261** *22–29m/23–24w* rather instinctive **262** *26–30m* **263** *11–14m, 26–30m* **265** *17–21m/19u "almost instinctively"* **267** *5–12m* **272** *17–22m/17–19w* with respect to life *17w* music? *21–24m* **326** *7–13m* **328** *4–8m* **333** *12–26m/23u "impel the will"/22–28w* can the instincts of bird building nest be said to impel will.– *25u "emotions"/wb* yet emotions are results – are trains of thought long ♣ associated with action **346** *25–28m* **348** *9–17m* **349** *25–29m/28u "is|remembrance"* **350** *1–6m/1–4w* so in birds it is **353** *7m/u "moral approbation", wb* certainly independent of conscience which applies only to one self.– ?sympathy? yes because one feels the pleasure for others which one would have felt, if one had done it oneself **355** *5–15m* **356** *8–24m* **357** *6–7u "beneficial tendency"* **359** *1–17m/3x, wb* poor attempt to account for beneficial tendency being test of virtue **364** *26–30m* **368** *7–19m* **372** *1–5m/1–2w* assumed *10–30m/17–19w* poor **373** *11–13m/12–13u "resentment|our"* **375** *15–24m* **377** *wt* Nonsense – similar association may be made with actions, involuntary as ..... & etiquettes of society broken unconsciously.– *1–7m, 14–21m/?!!* **378** *wt* All this applies to moral approbation but scarcely to conscience, which *1–13m* **379** *20–23m* **380** *21–27m/23–24u "contact|were"/w* trash *27!!/u "mental contiguity", wb* because the primary instinctive feeling tends to action like an emotion.– **381** *8–10w* here considered as unity *wb* Emotions having been formed by actions will always lead to them.– **382** *1–7m/2u "beneficial tendency"/3–4u "that | sentiments", 12–30m/19–20w* poor **383** *2–19m/ 7–8w* poor **385** *zb* **397** *3–5m/?, 6u "perfectly", 7u "different spheres"*

MACKINTOSH, James *The history of England* vol. 1, Lardner's *Cabinet cyclopaedia* London; Longman, Rees, Orme, Brown & Green; 1830 [CUL, on B, S]

NF *¢¢*

MACLAREN, James *A critical examination of some of the principal arguments for and against Darwinism* London; Edward Bumpus; 1876 [Down, I]

NB O/

MACLAREN, James *Natural theology in the nineteenth century* London; Edward Bumpus; 1878 [Down, I]

MACLAREN, James *Some chemical difficulties of evolution* London; Edward Bumpus; 1877 [Down, I]

12 *3–5m*♦

MacLEAY, William Sharp *Horae entomologicae* London; S. Bagster; 1819 [CUL, pre-B]

32 *31–32m* **42** *22–26m (Latreille)* **289** *4–10m/5–6m/6u* **291** *30–32m* **321** *4–20m* **447** *17–23"..."*

McLENNAN, John Ferguson *Primitive marriage* Edinburgh; Adam & Charles Black; 1865 [CUL]
beh, ch, h, he, hl, no, sl, ss, sx, v, y

SB ⟨*3 sides,* ♦⟩
M'Lennan✍ All <u>Used</u>
22,30 It is clear that brides purchased, but man wd choose prettiest– except when bought mostly young.– It will depend on forms of inheritance common to Man, whether females alone or both sexes affected
31,40 –choice in woman– Fuegians <u>Pages marked</u>
74,76 ✍ choice– Betrothed does not keep woman
45 no choice ✍ when captured 50 No Bates
95 ✍ 122 intermarriage incestuous
118,120 ✍ Exogamy keeps distinct tribes similar opened to sexual selection.
166 165 – origin of infanticide to lessen number of Women. to 208 good summary on Polyandry♦ & exogamy.

As yet idea♦ of♦ practice of avoiding incest not explained, probably arose in time of monkey-men
The scarcity of Women from infanticide of females leading to ♣– to promiscuous intercourse & polyandry, wd make the selection of women very difficult– ● had Men wd then be selected– p.176 (Promiscuousness a grt difficulty)
⟨*over*⟩ ✍ There must have been a time judging from lower animals, when men did not forsee, when there was not infanticide & when sexes equal, & then sexual selection wd come in & only occasionally since, at least when general licentiousness or polyandry prescribed.–
✏ p.288 I cannot help doubting whether lesser number of females owing to infanticide was so common as to make so many tribes exogamous.–? Extension of feeling for a cross – where close interbreeding in small tribes – passion – instinctive for foreign blood.
Effects of Habit for Explanation of Younger males – or instinct–
⟨*over*⟩ Guiana kill most female children bring up about 1/2
& Abortion, which wd destroy both sexes
& Abipones
& many tribes
It does seem rare to kill females alone

24 *4–5m/4u "bargain"* **30** *13–16m/13u "Kalmuchs | price"* **31** *17–29m* **32** *1–4m, 12–15m/13u "price"* **40** *9–13m* **45** *4–8m, 21m* **46** *6–10m* **50** *6–17w* why not a father receive money for parting with his useful daughter? **57** *4–14m* **66** *wb* There is no evidence as yet that men might not marry in own tribe.– if they lost their wives they would steal others **74** *14–16m* **75** *13–14m* **76** *5–6m/5u "celebrated | beauty", 19–21m* **95** *13–18m* **99** *10–15m* **102** *12–17m* **103** *2–4m* **118** *7–12m/w* Keep tribe similar **120** *3–8m* **121** *10–15m, 14–15m* **122** *9–11m* **130** *5–10m* **134** *6–11m* **138** *13–18m* **139** *5–13m, 21–23m* **140** *wt/1–3w* but if all tribes killed their daughters how is this possible? *3–9m* **146** *4–7m* **147** *16–21m* **148** *1–4m* **151** *7–11m* **159** *1–4m/w* Gorilla **162** *3–5m* **163** *1–3m*✏, *14–17m/?, 18u* **165** *6–14m, 7–13m*✏, *10–13m* **166** *1–7w* More Males killed in War *8–12m, 12–15m, 13–15m*✏, *18–20m*✏ **167** *2–5m, 6–8m, 9–11m*✏*/?, 12–14m*✏ **168** ✏ *7–11m, 16–18m, 20–22m, wb* Fuegians **170** *1–7m*✏, *7–9u*✏ *"The existence", 7–9m/8u*✎ *"assuming", 9–10m* **171** ✏ *7m/?/u "We | promiscuity", 13–15m, 16–21m, 17–21m* **172** *3–6m*✏ **173** *3–7m, 5–9m*✏ **177** ↕*w* There may have been a stage with infanticide & other stages of almost promiscuousness *5–8m*, *⇑5–1m, wb* Judging from the lower animals, I cannot persuade myself that at any early times powerful Men would not get more wives & ● **178** *2–7m* **179** *11–14m* **180** *1–8m* **181** *8–14m* **190** *19–21m* **193** *18–20m* **194** *4–5m/3–16w* Has there been so much infanticide??? See the Chapt. on infanticide.– **197** *5–8m* **204** *5–7m* **207** *1–6m, 7–9m, 10–15m* **208** *wt* can this account for races formerly modified & then being stationary: but now acting a little *1–10m, 6a "earlier"* but not earliest *7–9u↔, ⇑9u "artificially", ⇑5–3u±* **209** *1–7m, 10–13m, 16–19m* **210** *2–7m/3u "practising polygunia", 7u "originally promiscuous"/??* **211** *1–2m, 3–6m* **212** *1–7m* **213** *12–14m* **223** *8–18m* **225** *1–4m, 7–11m* **228** *14–19m* **229** *10–15m* **230** *7–10m, 12a "of"* foreign *12a "stocks"* within the group **233** *1–4m* **245** *1–5m* **251** *2–7m* **270** *12–20m* **288** *5–14m/1–13w* but it wd hold to female, with which each man was familiar **289** *12–16m*

McLENNAN, John Ferguson *Studies in ancient history, comprising a reprint of Primitive marriage* London; Bernard Quasitch; 1876 [CUL, I]
beh

NF *⟨pp. 133–34 of Nature, 14 December 1876; review of this book⟩*
133b *8–12m, 26–30m, 33–37m* **134a** *wt* I think McL always believes that Lubbock implies by marriage monogamy *3–10m]*

MACQUART, Justin *Facultés intérieurs des animaux invertébrés* Lille; L. Daniel; 1850 [CUL]
beh, em, h, he, ig, no, or, phy, sp, sx, tm

NB p2, p6, p10, p14, p95, p111, p112, p149, p210, 218, 230, 243, 264
a miserable Book
SB 2 Condillac on Instinct being only Habit NQ
6 Duges definition of instinct, as Hunger &c– Reflex action; True instinct NQ
14 Flourens Reflexion distinction of man NQ
210 Instinct of larva of Meloes hard to account for by gradation NQ
218 Larva of Hydrophilus shams death, as does one species of Zygaena NQ

2 *26–30m/29–30u "cependant | toujours"/wb* Hereditary Habit. **4** *11–12m* **6** *22–25m, 27–33m* **7** *7u "Dugès"/w* What written? *15–20m/16w* Reflex action *31–34m/w* True instinct **10** *12–13m* **12** *1–6m* **14** *5–6m* **95** *17u "d'Hermaphrodites | Androgynes", 17w* What difference? **111** *19–31m/30–31m/wb* They can do more, or as much, with fewer organs.– **112** *8–13m/9u "sans | efforts"* **149** *1–2m* **210** *7–11m/w* How did this instinct come? *13–18m/w* Human cases show that larvae can survive & live **218** *31–33m* **230** *26–30m* **243** *1–15m* **264** *4–11m*

MAGNUS, Paul Wilhelm *Beiträge zur Kenntnis der Gattung Najas L.* Berlin; Georg Reimer; 1870 [Linnean Society of London, I]

9 *zt* **11** *14m/c∉* **33** *16–18m* **36** *11∉✍* **37** *⇑20m, ⇑15m, ⇑10m* **45** *6–12m* **61** *10∉ ⟨CD?⟩*

MALLERY, Garrick *A collection of gestures and signals of the North American Indians* Washington; Government printing office; 1880 [Down]

MALLERY, Garrick *Introduction to the study of sign language among the North American Indians* Washington; Government printing office; 1880 [Down]

MALLERY, Garrick *Sign language among American Indians, compared with that among other peoples and deaf-mutes* Washington; Government printing office; 1881 [Down, I]

MALM, August Wilhelm *Göteborgs och Bohusläns Fauna, Ryggradsdjuren* Göteborg; Göteborgs Handelstidnings Aktie-Bolags Tryckeri 1877 [Down, I] ℘

MALTHUS, Thomas Robert *An essay on the principle of population* 2 vols., 6th edn; London; John Murray; 1826 [CUL, pre-B but S in vol. 1 C. Darwin April 1841]
beh, ex, f, h, no, oo, ta, y

vol. 1 NB In the British Critic or in the Critical Review for 1804 Review of Malthus by W. Taylor of Norwich
(Savages purchase wives – get arms & tools)
(Expelled natives with no stones near death)
5 Increase in U. States; 6 According to Euler
SB1 3; 29; 23; 41; 81; 343 Doubleday; 499; 517; 519
SB2
3 Malthus & Franklin saw the law of increase in animals & Plants clearly
23 Allows increase of some very population may be ♣ prevented by powerful & obvious checks.
343 Force of life in each country in inverse ratio to Fecundity (Doubleday)

MALTHUS
517 On Doubling in U. States in 25 years
⟨Also attached, a letter to the editor of the Times⟩

2 *21–22Q* **3** *3–6m* **5** *12–16m, 21–25m* **6** *10–14m* **23** *30–32m* **29** *wb* Even in savagest life some preventive check, for all savages do not marry quite young, have generally to purchase wife & prepare tools and implements.– **41** *15–17m* **81** *12–18m* **343** *wt/1–4w* This is much the same as to say well-fed are less fecund.– *7–9m/!, 22m/u "mosgt | countries", 27m/u "M. Muret", wb* give note after Doubleday **344** *4–6m, 15–17m, 22–23m* **352** *23–28m/24u "487 | 379", wb¢¢, wb* preventive checks come into play.– **353** *9u "preventive check"* **499** *6–8m/w* & animals **517** *10–19m* **519** *14–18m, 22–24m* **521** *16–18m, 22–27m* **vol. 2** ℘

MALTHUS, Thomas Robert *An essay on the principle of population* 6th edn; London; John Murray; 1826 [vol. 2 only; Down, pre-B, ED]

⟨markings presumed to be by ED⟩

MANTEGAZZA, Paolo *Fisiologia del piacere* 5th edn; Milano; G. Bernardoni; 1870 [CUL]
beh

NB Like dog not wagging tail when it gets food
119 *1–14m* **483** *1–11m, 15–18m, 17–20m, 22–30m* **484** *7–9m, 15–16w* illust.ion *26–34m* **485** *1–5m, 7–11m, 12–16m, 17–20m, 22–29m, 30–34m* **486** *1–34m* **489** *3m/w* 6 **491** *28–34m* **492** *8–9m* **497** *3–8m* **522** *7–10m, 12–17m, 26–30m, 31–34m* **565** *17m* **567** *14m*

MANTEGAZZA, Paolo *Fisionomia e mimica* Milano; Fratelli Dumolard; 1881 [Down, I]
℘

MANTEGAZZA, Paolo *Rio de la Plata e Tenerife* Milano; Gaetano Brigola; 1867 [CUL, I]
beh, h, sx, t, tm, v

NB ♦
[Seeing what a passion for ✄ it is strange that races of man not more altered.]
65 87 92
Q 162 163 166–67 186–87
320–325 334 352 389 391 453 457 458–9
463 465 525 to 546 615 624 676X
tembeta
American & Negro Beards
✍ 525 Exaggeration of what he has from nature.
(526 Beards)

529 teeth ✄
530 – & ✄
Nose in all parts of World
525–546 tattoos & ornaments

19 *4–5m, 9–10m* **20** *2–10m* **52** *24–27m, 30–32m, 34–36m* **57** *13–14m, 24m* **65** *15–36m* **66** *1–35m* **71** *16–18m* **87** *30–36m* **88** *1–37m* **92** *26–34m* **93** *14–36m* **94** *16–35m* **162** *14–25m, 27–36m* **163** *18–24m* **166** *25–36m* **167** *1–22m* **186** *23–36m* **187** *1–4m, 5–15m* **320** *33–36m* **321** *1–36m* **322** *15–19m, 24–35m* **323** *1–4m, 6–16m, 18–36m* **324** *1–34m* **325** *1–21m* **334** *12–36m* **335** *1–5m, 8–36m* **352** *29–36m* **353** *1–10m* **389** *12–16m* **391** *21–36m* **392** *2–6m* **453** *34–36m* **454** *1–36m* **455** *1–4m, 5–10m, 13–17m, 21–36m* **457** *29–31m, 33–36m* **458** *1–36m* **459** *1–5m, 9–12m, 16–20m, 24–35m* **463** *5–7m, 10–14m, 21–36m* **464** *17–31m* **465** *6–11m, 16–35m* **511** *15–19m* **525** *21–30m/23–28w* Man always exaggerates what he has **526** *1–24m/7–9w* Calmuks beardless *16–17m, 16–27w* New Zealand No woman for Hairy man. *wb* As from T. del Fuego to Vancouver Isd (Sproat) ie Lat to Lat <u>New Zealand</u> the natives eradicate the beard – not likely to be merely handed down fashion or custom; but dependent on the general principle of man exaggerating natural characters. **527** *4–21m*✎ **528–546** *⟨m✎ on every page except 542–544 inclusive⟩* **528** *1–20w* deformation of Head (also Mentioned by old Classical writers) **529** *15u/wτ, 15–18m/w* women *18u/wτ, 24u "Alto Nilo", 25–26u*↔ **530** *8–10m/9u "aver | cani", 21–22m, 24w* Nose **531** *23w* Lips **532** *22–23m/u "donne | inferiore"/w* women **533** *wt* lower lip 4 inches in diameter *1–3m/x/3u "quattro | diametro", 24–31m, 24–31m/→/24u "tembeta"/30u "con | gioia"/wb* curious account of man who sold his tembeta from lower lip & was ashamed of hole left & all laughed at him.– **534** *2–5m/w* women with upper lips perforated *19u "Zenzibar"/w* Ears *27u "Negri | australi"/w* Ears **535** *6u "Bali"/w* Earring *8u "Nepal"/8–9w* Nepal earring *12u "Car-Nicobar"/w* Ears *24–25w* New Zealand Earring **536** *wt* It is curious that face far more operated on than rest of body – in same way as we think more of beauty of face than rest of body.– *15u "qualche | spalle"/14–18m/w* Ears distended to touch the shoulders.! *28u "vanità", 29u*↔*, 27–34w* Motive for tattoing– <u>add</u> sign of tribe & High birth **537** *wt* It is curious how in all parts of world, Men paint & tattoo themselves – & perforate their ears – In Africa & America both lips are perforated & distended – Every part of face in some part of world is perforated– lips cheeks all parts of nose.– *5–6m/6–7m/5–9w* old Jews tattooed & Ancient British *19u "Nuova Zelanda"/19–21w* New Zealand & Pacific Isds *28–31m/30u "donne|tatuate", 30m/31w* women less tattooed *32–33m/u FN* **538** *1–5m, 3u "Nuova Caledonia"/3–7m/w* New Caledonia tattoo *6m, "Non-hiva", 10m/11u "donne|godono"/10–16w* Tattoo but not women except partially **539** *9u "Novao Goda"/11u "meno|faccia"/9–11m/w* face not tattoed *26–27m/27u "Giapponesi"/w* Japanese tattoo *32u♦/30–32w* women only powder themselves **540** *wt* Women of high birth in some cases allowed to tattoo most.– *1–3m/w* Hindoos *6–8m/7u "]|tatuano"/w* Burmans *13–15m/w* sometimes the women *23u "Etiopia"/24–25u "strappano|e"/24–26m/w* tattoo & pull out eyebrows & paint lines *5m/wb* Tembeta **541** *wt* (a) Africa tribe-marks also Royal marks (not ●) *1–9m, 11–12m/11u "donne|unghie"/11–16w* colour nails & so in several parts of Africa *18–22m/w* (a) **542** *wt* Women of Kattivar tattoo arms & & chin & are thought ♣ irresistly attractive.– Men. My case N. Zealand or Tahiti *2–3m/u "anneviscono|labbra"/w* paint? ♣ Eyelids *5–7m/6u "son|attrattiva"/w* (a) *8u/wτ, 18–19m/18u "In|hanno"/20u "Esquimesi"/w* women & men *26m* **543** *1–36w* They paint themselves in the most diversified manner with various colours – as is notorious.– *11u "vicini|o"/12u "sempre|agli"/10–16w* S. America tattoo & paint thinks not for beauty but to look terrible *28u "è|livrea"/26–31w* The slaves of same master paint in same way as Livery. *33m/u "tatuano"* **544** *1–2m/1u "invece|si", 9u "abipone", 11u "quando|nubili", 10–13w* Women paint themselves when marriageable *19u "tatuaggio", 21u "la|donne", 20–22w* virgins of women *26u↔/25–28m/25–31w* Chief of S. America much tattooed in face **545** *4–22m/8u "quelle"* **546** *1–5m, 11–16m* **588** *25–26m* **589** *1–3m, 4–22m* **594** *29–33m* **611** *17–25m* **615** *7–8m, 11–16m* **621** *12–19m* **623** *23–28m, 31–36m* **624** *14–17m, 19–36m* **625** *1–18m* **645–647** ✎, *m/wτ* **676** *7–32m*

MANTEGAZZA, Paolo *Studii antropologici ed etnografici* Firenze; Tipografia dell'arte della stampa; 1877 [Down, I] ℘

MANTEGAZZA, Paolo *Il terzo molare nelle razze umane* Firenze; 1878 [Down, I]
rd

NB Shows that the wisdom tooth is really being rudimentary

MARCHAND, Étienne *Voyage autour du monde* 5 vols., introduction by C.P. Claret Fleurieu; Paris; Imprimérie de la République; 1792 [Down, pre-B] ℘

MARSHALL, William *Minutes of agriculture made on a farm of 300 acres of various soils, New Croydon, Surrey* London; J. Dodsley; 1778 [CUL, pre-B, I]

MARSHALL, William *A review of the reports to the Board of Agriculture from the northern department of England* York; Thomas Wilson & Son; 1808 [CUL, pre-B, belonged to Josiah Wedgwood]
ch, cs, or, sl, t, ta, v

NB Please do not rub out these numbers
Ch. Darwin
50; 73; 74; 78; 80; 95; 97; 99; 115; 153; 154; 196; 200; 202; 295; 303; 403; 404; 406; 480; 487; 489
SB ❑β
78 Oats – varieties very transient
192 Origin of Potato Oat in Potato Field
200 On the want of Uniformity of the unshepherded sheep in different parts of England, whereas those within fences, each have uniformity – owing to crossing
295 Great attention paid to changing sets of Potatoes
406 Speaking of sheep, on common of Yorkshire "as they are mostly in small lots they can never be improved"

50 *14m* **73** *25–31m* **74** *30–31m* **78** *9–11m* **80** *12–18m, 26–29m* **95** *1m* **97** *37–38m* **99** *17–20m, 25–27m* **100** *5–7m* **115** *29–36m* **153** *26–27u "by|advantage", 27–28u "are|disadvantageous", 38m/u "preserve|old"* **154** *21–23m* **177** *14–15m* **192** *5–10m, 12–25m* **196** *30–31m, 34–37m* **200** *8–18m, 25–31m/25–26u "Sheep|in"*/Q✍ **201** *14–19m/15u "p.199"/w* Selection *32–35m* **202** *14–16m/x/wb* x But it does not follow that the aboriginal stock varied like present mixed unshepherded sheep *22–24m, 27–29m, 37–38m* **262** *12–13w¢¢* **295** *wt* 1808 *8–9m/7–12w* seeds or false bulbs? *20–21x, 26–27m, wb* X Lancashire great authority in Potato crops **296** *1–6m* **303** *9–10m, 11u "curl", 19–22m, 37m* **403** *12–18m/12u "which|on"/14u "plow|discernable"* **404** *17–20m/17u "be suited"/18u "soils|climatures"* **405** *2–4m/3u "be|two"* **406** *19–21m, 38–39m* **480** *32–34m* **487** *27–29m/27u "mixed|two"* **489** *27–32m*

MARSHALL, William E. *A phrenologist amongst the Todas* London; Longmans, Green & Co.; 1873 [CUL, S]
beh, ex, h, no, sx, t

SB p100 Infanticide
110 do & cousins marrying.–
193✍ infanticide Britons
194✍ infanticide extinct with Todas
196 good evidence
204 Polyandry ✍ among the ♣ barbarians surrounding the Jews
212 Todas girls can reject a Man ♣ they are in a very primitive condition & the damsel bought for Buffaloes
225 Natives promiscuous union was aboriginal
228 causes of Polyandry
232 polyandry & female infanticide always together or the latter has existed
as number of sexes differ in animals there must be some other causes than infanticide

xi *26–28w* O/ **xii** *22–23m* **xiii** *16–17m, 23m* **xvi** *14–16m* **1** *zb* **2** *13–16m, 22–25m* **8** ⇑*17–9m* **81** *17–19m* **83** *26–29m* **99** *7–10m* **100** *5–10m/9u "Suspected"* **101** *5–8m* **110** *6–10m, 34–35m* **111** *3–6m, 13–15m, 17–30[...], 24–33m* **123** *15–23m* **124** *21–22m, 23–24m* **125** *1–3m* **136** *7–13m* **142** *15–18m* **145** ⇑*4–1m* **154** *27–32m* **160** ⇑*1m* **166** *1–3m* **176** *6–10m, 12–13m* **180** *4–5m, 11–13m* **193** *20–22m* **194** *23–31m* **195** *31–33m* **196** *4–10m* **198** *19–23m* **204** *14–18m/w* Semites polyandrous *25–28m* **206** *6–9m* **212** *1–4m* **213** *28–32m* **215** *1–4m* **225** *7–11m* **228** *12–19m* **229** *6–9m* **232** *15–22m* **260** *1–2m* **263** *29–30m*

MARSHAM, Thomas *Coleoptera Britannica* 2 vols.; London; J. White; 1802 [CUL, vol. 1 only, pre-B, S]

MARTIN, W.C.L. *The history of the dog* London; Charles Knight & Co.; 1845 [CUL]
beh, br, cs, ds, gd, h, he, hy, oo, or, sx, sy, ta, tm, v

NB 1 to 21; 18 cross Rabbit & Hare
52; 61 to 71; 78; 84; 104; 107 & 8; 114 to end
SB ❑β
14 Dog in Zoolog. Garden Q learned to Bark
18 Proc. Zoolog. Soc. Hybrid Hare & Rabbit I see M. doubts parentage of Richardsons Dogs
p.31 admits only a cross with such
51 Dogs of antiquity Q
63 Remarks on instinct : barking do. acquired
67 Yarrell Zoolog. Soc. Proc. on Hairless Dog toothless Q
104 First Dog affects subsequent puppies
106 Classification of all Vars Q
116 Esquimaux Q taking Wolves to improve Breed
146 Rough Greyhound aboriginal form QN
154 In Greyhound females smaller
180 On a Dog liking to catch carp & trout & M. Jukes mentions another Dog in Lapland – ch. 6)
203 African Dogs in Tower never bred Q

title page *wb* 1845 **5** *12–13m* **7** *6–8m, 15–16m, 25–27m* **9** *11–12m, 17–21m* **11** *3–4m* **12** *29–32m* **14** *10–11m/*Q **15** *1–2m* **18** *2–4m, 9–13m, 18–19m* **19** *9–12m* **21** *26–27m* **31** *6–17m* **45** *10–12m* **46** *4–7m* **47** *27–28m* **49** *13–31m/16–17u↔/25u "old turnspit"/27–28u "most|dog"* **51** *3w* peculiar **52** *27–32m* **53** *11m, 13–16m, 14–17m, 18–22m/22u "and|extant"* **54** *9–11m* **57** *2–3m, 8–9m/u "to|ears", 17m, 28m* **61** *3–7m, 19–20m, 23–24m, 25–26m* **62** *4–5m, 11–14m* **63** *15–23m/18–21"..."* **64** *10–11m/"...", 27–29m, 29–32m* **65** *4u "is an acquired", 5–8m, 23u "all|scent"* **67** *2–4m, 9m, 18–21m, 24–30m* **70** *1–2m, 11–13m* **71** ⇑*14–6m* **78** *1–6m* **84** *10–15m* **104** *21–24m, 26–31m* **106** *10–35m* **108** *5–8m* **114** *27–31m* **115** *13u "great|true", 21–24m* **116** *11–15m/14–15u↔* **126** *21–25m* **128** *14–22m* **129** *13–18m* **131** *29–32m* **132** *21–24m* **134** *26–32m* **136** *9–11m* **137** *16–18m/17u "All|were", 21–24m, wb* H. Smith wd say from crossing **139** *14–15m/14u "smooth|sprung"* **143** *4–9m* **146** *20–30m* **147** *1–4m* **148** *1–2m* **152** *2–6m* **153** *26–28m* **154** *23–26m* **155** *16–20m* **170** *3–10w* St Bernard Dog *9–15m* **173** *19–22m, 21–23m* **176** *27–32m* **180** *29–32m* **181** *wt* Jukes mentions dog in Newfoundland *1–4m, 21–23m/22u "abbreviated"* **192** *13–16m* **202** *22u "Central Africa"* **203** *7–9m/8u "wonder|bred"/*Q *14–17m/15u "related|hound", 18u "old Spanish", 19u "vigorous|active"* **204** *27–29m/28u "which|quarter"* **205** *1–5m* **212** *6–10m* **215** *5–6m, 22–24m* **216** *5–8m*

MARTIN, William Charles Linnaeus *The history of the horse* London; Charles Knight & Co.; 1845 [CUL]
beh, fg, fo, gd, geo, gr, hy, is, or, phy, ta, v, wd

NB 28 to 50; 86; 97; 129; 134; 155; 159; 167; 169; 171; 177; 190; 202; 205; 208; 211; 212; 220; 221 to end
SB ❑β
41 Tarpans scrape snow with feet Q✍
97 Red-Back Horses only asinine in colour Q
129 Period of gestation differs very much. Q✍
134 Dappling in black, Bay & Gray Breeds Q
206 Striped common ass & Mule 212

207 Ass more variable than generally supposed: 3 breeds in Syria
222 Zebra Mules Q

title page *wb* 1845 **6** *14–23m* **8** *13–19m* **10** *18–24m* **12** *3–12m/w* Brazil cases *16–20w* Beavers *24–38w* There are no regular strata, young enough **21** *17–21m* **28** *39–40m* **30** *23–26m* **31** *19–21m* **34** *1–6m/3–4*Q✍, *15–19m, 31–33m, 38–39m* **35** *5–8m, 32–38m* **36** *1–4m* **37** *2–6m* **40** *15–20m/12–17w* ie real wild Horse **41** *2–4w*✍ S. wind Falklands *5–8m/7x*✍, *37–40m* **48** *1–3m* **50** *8–13m* **62** *30–35m* **63** *1–4m* **86** *3–7m, 35–39m* **87** *12–15m, 27–33m, 34–36m, 38–40m, wb* Are horses found ♣ in Peat Bogs?– **88** *3–8m* **89** *1–5m, 6–9m* **97** *24–29m/25–26*Q **129** *6–10m/9–10*Q✍, *25–30m, 40m* **130** *23–27w* like Roulin mules *26–33m* **134** *13–16m/15u "still | circles", 18–20m/18–19m, 23–27m, 31–32m* **155** *19–21m* **159** *33–41m* **160** *1–4m* **167** *6–9m/9u "mouflon ranges", 10–12w* insular quadrupeds **169** *19–23m/22u "several ponies"/ 20–24w* not all aboriginal *29–30u*↔, *34–37m* **171** *36–40m* **172** *1–4m* **177** *7–9m, 27–33m* **190** *34–39m* **202** *5–10m* **205** *14–16*Q *16–17u "clouded | ground", 18u "dapple", 26u "dorsal | bar", 35–40m/*Q*/40u "double cross"* **206** *1–4m, 9–13m/*Q *17–22m/18–19m/u*✍ *"small | breed"/ 21u*✍ *"Syrian ladies", 28–29m*✍, *34–36m*✍ **207** *7–13m, 22–24m*✍*/m/24u*✍ *"Arab", 25u*✍ *"saddle", 40m/u*✍ *"is | stout"* **208** *2–4m*✍, *7–9m*✍ **209** *27–29m* **211** *2–4m*◆*/3u "Genesis xxvi"* **212** *4–7m, fig.*Q **218** *23–26m* **220** *21–24m/*Q **221** *19–24m (Thomas Bell), 33–37m* **222** *4–9m, 35–37m* **223** *7–9m, 11u "was | dun", 18u "drab | dun"/*Q *23u*✍ *"more | down"/24u "side | fetlocks"/22–25m/w* Burchells Zebra & Ass

MARTIN-SAINT-ANGE, Gaspard Joseph *Mémoire sur l'organisation des cirripèdes* Paris; J.B. Baillière; 1835 [CUL]
beh, af, ci, phy, sx, sy, tm

2 *19w* 1806 **7** *22–24m* **8** *24–25m* **9** *26–28m* **10** *1–4m, 8–10m* **11** *8–9m, 21–22m/w* does not mention inner tunic of sack *25–28m/w* are these muscles in 6 bundles **13** *15–16m/16–20w* Does not perceive homology *22a/u "seconde"/w* double *23–24m/w* all right *23u "en | même"/24u "les | une"/26m/23–31w* does not state that this is the conum for inside of ● *32u/32–33m/w* pedical not articulated **14** *11–15m, 21–24m/X, ⇑1x*✎, *wb*◆ Does not describe much of pedicel of body– **15** *wt* Cirri power of separating from each other & two rows from each other *1–2m, 4–5m, 6–12w* does not mention much of dorsal articulation *14–15w* or their attchm to 2d joint of pedicel *22–24m/16–24w* knows nothing about apodeme or homology *28–30u±/w* !! 4 pair, right Considers palpi as Mandibles *30u*✎ *"langue"/wb*✎ ? & p.23 **16** *5u "une ligue"/?, 6u "muscle constrictor", 10x*✎, *12w* does not moulting *14–16m/w* quite right *26x*✎, *33x, wb* a single caecum!! **17** *7u "d'une | enfoncemens", 9–12m/w* I always have found loose. *16–18m/ 16–33w* is not aware of the distinctness of rectum shown by moulting, for he does not describe the two coats – or two coats of oesophagus. *wb* I believe it contracts itself, when separated by the cloche of rectum **18** *10–12m, 13–14x*✎, *14–16m, 17–19m, 20–29w* ie what I have called – oviduct – There is hollow in middle of pedicel of body **19** *17–25m/x*✎*/18u "filet | salivaire"/24u*✎ ±, *30–33m/ x*✎*/w* thinks legs thoracic!! *wb* is this owing to basal joint being confluent?! probably **21** *2–4m, 11u "la queue"/10–11m/w* No *16–17x*✎ **22** *7–8m, 9–17w* Male organs differ considerably from those of a true Crab. **23** *23–24m/w* this must be when agitated by fear *26u "petite langue"/27u*✎ *"deux dernières"/26–29m/?* **24** *15–18m, 24–30w* is edge of oesophagus fixed to stomach? I think so *zb/ wb* ant support Dorsal support muscle attached to end of spoon & opening valvular mouth **25** *wb* Look at stomach of B. candidus – **26** *28–30m/w* in Polliceps too hard to contract surely.– **27** *1–3m/2u "sur | repli", 6–9m* **29** *1–11w* Body generally bent a good character Articulation oblate except 5. posterior abdominal segments. *26–30m* **30** *26–27m* **36** *25–27m/!/w* wrong **37** *1–3m/!/w* No *6–9m/8u "branchires"/?, 12w* Yes *14–15m/w* Yes *20u*✎ *"autre part"/19–23m/!/w* No *22–23m/!/w* No *26–27m, 29w* Yes *33u "sac membraneux"/w* No **38** *1–3m* **41** *9–11m* **Plates** ⟨*parts of animals named*⟩

MARX, Karl *Das Kapital* vol. 1; Hamburg; Otto Meissner; 1873 [Down, I] ℘

MASARYK, Thomas Garrigue *Der Selbstmord als sociale Massenerscheinung der modernen Civilisation* Wien; Carl Konegen; 1881 [Down] ℘

MASKELYNE, Nevil *Tables requisite to be used with the Nautical ephemeris* 3rd edn; London; 1802 [CUL, pre-B, on B, S]

NF *w¢¢*
➾ When barometer stands higher than the neutral point the Capacity is to be added: when lower it is to be subtracted
The logs at end of this book to be used.

MASKELYNE
NB ⟨*a drawing*⟩
57 *w* p.1 These tables are explained at end
62 *wb*✍*¢¢*

MASTERS, Maxwell Tylden *Vegetable teratology* London; The Ray Society; 1869 [CUL]
he, mhp, mn, sp, tm, v

NB 29; 90; 320 phyllotaxis; 204 ✔✐; 340; 373; 404 ✔✐ Cleistogam flowers; 410; 424; 467; 472; 478 ✔✐ Pang; 483; 485; 486; 488
SB
✍ ⟨*not CD*⟩ Masters on Teratology
29 Cohesion of stamens in exaggerated degree as in normal species
29 *26–32m* **90** *21–26m, fig. 42.m* **91** *1–4m* **131** *30–32m* **204** *12–20m* **251** *7–9m* **253** *24–26m* **320** *18–28m* **340** *3–13m* **373** *7–8w* other cases *10–16m* **404** *2–18m* **410** *1–6m* **424** *30–42m* **467** *13–34m* **472** *27–34m* **478** *6–14m* **479** *2–14m* **481** *1–3m (Bentham)* **483** *20–22m* **485** *11–19m* **486** *16–29m* **488** *15–23m* **534** *zb*

MATTHES, Benno *Betrachtungen über Wirbelthiere* Dresden; 1861 [CUL.1900] ℘

MATTHEW, Patrick *On naval timber and arboriculture* Edinburgh; Adam Black; 1831 [CUL, S C. Darwin Apr. 13th 1860]
h, oo, sl, sp, t, ta, tm, v

NB 32 Oaks 2 vars or species sessile & peduculated
107 on selection of Forest-trees why not flowered
302 Occupancy like Herberts view of plants not growing in soil best suited to them
307 on Selection good Man interferes with law & this causes variation.
357 Size of English & Scottish acorns & quicker growth of tree from English Acorns
364, 381 Law of Natural Selection published in G. Chronicle April 7th 1860
⟨*CD?*⟩ 364–5, 381–3, 106–7

32 *8–17m* **106** *5[...* **107** *6–19m* **108** *⇑11...]* **302** *14–25m* **303** *1–6m* **307** *24–26m* **308** *2–17m* **328** *30–31m* **357** *22–27m* **358** *18–21m* **365** *8–9u "more | kind"* **381** *5[...* **382** *17–21m/w* too near to ● *29u "nearly | living"* **383** *1–4m, 27–29m*✍ **388** *10...]*

MAUDSLEY, Henry *Body and mind* London; Macmillan & Co.; 1870 [CUL]
beh, h, he, mn, pat, sx, t, tm

NB1 ◆ p.48 Hand of idiots – thumb not used in
NB2 p51 Idiots smelling food see Scott Deaf & Dumb – p86◆
p7,8,10 & all 1st Chapter
53 Savage snarl – Selection
p47–49,51 Reverse idiots Hair After Vogt & idiotcy
p.55 Brain weight
59,60 Moral Sense
62 ◆ Brain Wanting parts
All referred to proper places
p10 ◆ Savage snarl of Habitual Microceph○ Insane Reversion
p29,p85 Devotion

2 *9m, zb* **7** *6–18m* **8** *3–7m/3–13"..."/8–13m* **10** *28–30m/"..."* **11** *7–11m, 14–18m* **12** *7–12m* **13** *1u "ganglionic nuclei", 2u "are | with"* **28** *29–30m* **29** *16–22m/19w* devotion **30** *5–9m* **31** *19–23m/23–25m/20–29w* like other secondary sexual characters **41** *3–7m* **47** *10–15m, 19–27m* **48** *23–24u*✎ *"often | hands", 25–27m/27u*✎ *"short | cheek", 30u*✎ *"filthy"* **49** *16–22m/17–18u*✎↔ **50** *29u*✎ *"dirty in"* **51** *3–7m/3–4"..."/*Q *24–29m, 29–30w* smelling *30–32m, 32–33u*✎ *"his | smell", 35–36m* **53** *1u "savage snarl"/1–3m/*Q **55** *10–16m (R. Wagner)* **59** *1–18m/7w* H. Spenc **60** *4–8m/5–7"..."/wt/1–7w* sympathy & social affection deteriorated wd suffice **62** *⇑3–1m/w*○ wanting parts **67** *zb* **85** *11–14m*

MAUDSLEY, Henry *Body and mind* London; Macmillan & Co.; 1873 [Down, I] ℘

MAUDSLEY, Henry *The physiology and pathology of mind* London; Macmillan & Co.; 1868 [CUL]
beh, h, pat, phy, sl, sx, tm

SB1 ➾ Man
Maudesly on ♣ ✏ Mental Phys; p.220 p.19 p311 imagination
54 Brain of Bushwoman
108 Language & Expression✏
– Good
SB2 ➾ Maudesly on Insanity; ◆ Expression; 103; 104; 109; 148; 158; 160; 193 (?)
SB3 ❑β
19 Man; 54 do; 72; 89; 103 Use increasing sensitivity of senses; 104 Instinct; ◆ 108 Origin – term of Natural Selection –; 109; 132◆ Man (good) Q; 148; 158 Expression; 160; 193; 220 Man (Imagination); 311; 199 Laura Bridgman The tongue grt organ of speech
Look over
✐ Slips all put in proper places

19 *28–34m* **54** *9–20m* **72** *8–14m, 21–25m* **89** *25–30m/26w* Drosera **103** *12–20m* **104** *26–34m*

105 *34–39m* **109** *8–12m* **125** *28–37m* **134** *30–31u "of | places"/32u "senses | again"/29–33m/w* looks as if man gaining more perfect smell **148** *7–10m* **149** *19–21m/!/20–21u "self-expansion"* **158** *32–34m, 35–39m* **159** *13–17m* **160** *11–15m* **193** *31–39m* **199** *14–20m, 27–36m* **220** ⇑*3–1m* **311** *18–24m (Coleridge)*

MAUDSLEY, Henry *The physiology of mind* London; Macmillan & Co.; 1876 [Down, I by publisher]
beh

NB 384 Expression
270 *19–20m* **384** *31–36m* **385** *5–6m*

MAWE, John *Travels in the gold and diamond districts of Brazil* new edn; London; Longman, Hurst, Rees, Orme, Brown & Green; 1825 [CUL, pre-B, on B, S Chas. Darwin Octob: 1832 Buenos Ayres]

18 *27u "fazenda"/w* Brazilian

MAXWELL, James Clerk *Matter and motion* London; Society for promoting Christian knowledge; 1882 [Down, FD]

MAZAROZ, Jean Paul *La Genèse des sociétés modernes* Paris; A. Lévy; 1877 [Down]

MEDLICOTT, Henry Benedict and BLANDFORD, William Thomas *A manual of the geology of India* 2 vols. and a vol. of maps; Calcutta; 1879 [Down, I]

MEEHAN, Thomas *The native flowers and ferns of the United States* 2 vols.; Boston; Prang & Co.; 1878 [Down] ℘

MEETKERKE, Cecilia Elizabeth *The guests of flowers* London; Griffith & Farran; 1881 [Down, I]

MEITZEN, Ernst *Bhawani* Leipzig; E.H. Manen; 1872 [Down]

MELIA, Pius *Hints and facts on the origin of man* London; Longmans, Green & Co.; 1872 [CUL]
beh, pat

NB p.47 can these statements be true? Deaf & dumb do not know what right & wrong is As dogs have social instincts it is incredible that deaf & dumb shd not – though I daresay they do not know what is called right or wrong ☞ But no doubt they may have social instincts & family affections which wd prompt them to right action.

47 *18–23m*

MENGOZZI, Giovanni Ettore *Della filosofia della medicina* vol. 1; Livorno; Scuola italica; 1869 [Linnean Society of London, I]

MERRIAM, Clinton Hart *A review of the birds of Connecticut* New Haven; Tuttle, Morehouse & Taylor; 1877 [Down]
beh, ch

NB 52 Changes in Habit of Birds
52 *23–34m*

METZGER, Johann *Die Getreidearten und Wiesengräser* Heidelberg; C.F. Winter; 1841 [CUL]
ad, cc, ch, ds, gd, mhp, no, sl, sp, ta, tm, v, wd

NB N.B. The cases of grains changed from Summer to Winter wheats &c is rather a different course of variation from anything which I have hitherto considered; an self adaptive power
12; 24; 36; 47; 50; 54; 56; 63; 65; 66; 68; 88; 90; 96; 114; 116; 137; 185; 206 to 217
SB ❐ℜ
18 Summer & winter Barley differs only in constitution & easily goes back 54 Wheat do.– a self adaptive power, a habit –
24 Naked Barley changes into common
63 advocates change of seed in Germany
66 & 116 var varied at first, & then came more (20 years) constant being accustomed to climate 25 years This fact very important for shows yet accustomed to change.
69 a var. not injured by late frosts.
91 vars. variable in one climate not in others
116 so in different soils
114 a very constant var; many unconstant mentioned.
206 on Maize, difference in height & period of Vegetation; says American seed gives plants which become acclimatised & altered in form – Each land has its own form; form of seeds & number of rows differs.
208 Description of changes in Maize from American seed, 210 due to climate, so quick – Change in period of ripening. – Variation (p.212) comes on in Europe; & American vars. quickly take European Character.
217 very early Maize. [Believes all maize one species & gives reason for]
All used ✎

METZGER

title page *wt*✎ 3 Herbacious 4 oats **9** *12w*✎ 1 **12** *1w*✎ 2 **18** *35–37m, wb* no difference between summer & winter barley except time of sowing & ripening & will go back again (NB so it is in Mexico) **19** *1–2m, 31–32u "eine | hat", wb* might be quoted as constitutional difference with no external difference **24** *4u "Wir | bemerkt", 6–10w* changes in common Barley *32–36m/w* naked seeds **27** *1–2w*✎ 3 **36** *13–14m/u "weil | ausartet"* **47** *19–21w* no Botanical difference *23–25m/23w* changes **50** *3–5m/4w* changed *wb* to p.120 **54** *29–32m/31u "Aussaat | Frühling"* **56** *30–31u "Diese | Überzug", 31–35m* **57** *12–13m/12u "jedoch | sich", 27u "artet | Spielart", 28u "jetzt keine", 35*→ **58** *32–33u "ist | übergeht"* **63** *18–25m/w* strong on advantages of change of seed **65** *10–11m/10u "artet | und", 17u "Jahrhundert"* **66** *29–36m/w* varied first year then became more constant **68** *9–10m/u "grössere | Kälte"* **69** *14u "Spätere | Schaden"* **88** *27–28m/u "und | erscheint"* **91** *32–34m/35u "einen beständigen"/* → **92** *1u "Charakter angenommen", 9u "wohl | beständigen", 17u "in | wechselnd", 18u "bald | länger"* **96** *21–24m* **97** *32–36m/w* changes in colour of seed **114** *17–18m/u "und beständig"* **116** *wt/1–16w* we have seen that some varieties of wheat in a colder climate have been variable, so no relation to food *19u "günstigen", 20u "magerem Boden", 21–23m/21–24m/w* variable for 25 years at last constant *35m, 38–43m, 38u "Seit | langjährigen"/41–42w* variable **117** *17–19m/18–19u↔/19m/wb* I do not see that selection has anything to do with this **135** *28w* 1 **137** *wt* many trifling cases of Variation not marked *8m/wτ, 9–12m/w* awns vary in presence ♣ **141** *12w* 2 **145** *1w* 3 *24w* 4 **185** *13–14m/w* 14 kinds of Rice **206** *19u "dem | Jahrhundert", 24u/25u/27u/28u¢¢, 20–27w* no plant more variable than Maize *29–32w* vegetative periods *32–33m, 34u "selbst | Form", 35–38m, 39u "Da | besitzt", wb* the longest-vegetation American kind sowed in our climate in gd year gives seeds which ♣ vegetate in shorter time & ripen seed, & the form & shape of seed alter & become like common German **207** *13–15u "Reihe | Samen", 23m, 28u "eine Stammform"/24–35m/w* thinks all maizes same species though some forms more persistent **208** ⟨*many m, u* ✎⟩ *6u*♦*/7u "Flach"/8u "kleinen Zahn"/8u*♦*/5–9m/w* shape of seeds seems to vary greatly *10–11w* 12 Unter-art. *13u "12 Fuss", 14u "oberen", 22–24m/22u "9 | Fuss"/23–25m/21–26w* some seed of 1st year seedlings departed from type *27–35u±, 28–36m/m* **209** *wt* see Description *1–7m*✎*, 1–6m, 1–7u±, 8m*✎*/u*✎ *"12 | Samenreihen", 9u*✎ *"länger | breit", 10u*✎ *"Zahn", 16–18m/15–22u±/18–20m*✎*, 29–33m, 33–34w* same variation as above *wb* two vars. returning into one.–) **210** *3u "Engelmann"/wt* good man *9–14u±/wt/1–18w* [These are the most striking facts of effect of climate. *18–20m/18–22w* no one wd really believe in such change *22u*✎ *"Chicken corn", 23–24w* a more constant form *26u*✎ *"12"/25–28w* rows of seeds differ *29u "ersten Jahre", 34u*↔ **211** *14–15m, 15–18u±, 24–25m/w* long cultivation fixing forms *34u "starken | ausgehend"/32–35w* seeds toothed **212** *6–7u↔/w* wet summer *8a/u/wτ, 9u "Diese Spielart", 10u "zeigt | mehr", 18w* (a) *20–22u±, 24u↔, 35u "rund | gewölbt", wb* (a) Every variety seems to change in Europe **213** *1–2m, 5–6m/5–11w* thinks all the European Maizes descended from the two great varieties of America *15u±, 26m/u±* **214** *20–23m* **215** *10u*✎ *"12–20", 15m/u "Stammt | Spanien", 20–30w* 3 or 4 Spanish varieties **216** ⟨*u*✎⟩ *3u "unregelmässigen", 8u "die | beständig", 15u "verzweigten ästigen", 22u "Kolben | kurz", 23u "meist 12", 25u "Italien", 26u "Cinquantino"/26–27w* Italian **217** *9–10m/x*✎*, 14u "artet | aus"*

MEYEN, Franz Julius Ferdinand *Beiträge zur Zoologie gesammelt auf einer Reise um die Erde* including
ERICHSON, Wilhelm Ferdinand and BURMEISTER, Carl Hermann Conrad *Beschreibungen und Abbildungen der von Herrn Meyen auf dieser Reise gesammelten Insekten* Breslau & Bonn; Verd. der Kaiserlichen Leopoldinisch-Carolinischen Akademie der Naturforscher; 1834 [CUL, S, on B]
gd

NB p.112♦
℘
62 *24–26w* ● middle Chile at most height &c **63** *4u "Insekten | Würmen", 6u "paarweise", 26u "Spiegel"* **64** *21–22m*
℘

MEYEN, Franz Julius Ferdinand *Neues System der Pflanzen-Physiologie* 3 vols.; Berlin; Haude und Spenersche Buchhandlung; 1837–39 [Botany School, FD]

MEYEN, Franz Julius Ferdinand *Outlines of the geography of plants* London; The Ray Society; 1846 [CUL]
cc, gd, geo, gr, is, no, sp

NB Hooker says very poor & I quite agree ⟨*CD?*⟩ Meyens Travels Lichtenstein Martius Humboldt Treviranus Biologie Gaudichaud

SB1 3; 4; 40; 43; 69; 82; 93; 94; 95; 99 to end◆; 103; 187; 251; 253; 255; 256; 258; 261; 264; 270; 272; 323; 326
SB2 43 Trees Cedrela washed to Canary Isds from America viz Cedrela
103 Representatives of S. African Flora in Spain, according to Link
187 O/ 109 Genera in La Plata 70 Europe & 85 N. Hemisphere (& as few identical species there must be much representation, without these 85 genera are Mundane.
248 Bejaria in Florida in Lat 30° at level of Sea
255 very few genera confined to Alpine regions
256 Near Snow-line of Cordillera, the greater number of alpine plants are peculiar (very poor authority)
– Reinwardt says none of Java alpine plants identical with Europe (Hence at least vars)
257, 258 On American Alpine plants of Chile & some European forms
261 Fewness of plants on islands has been disputed by Schouw

3 *24–26m* **4** *24–26m/?* **40** *19–22m* **43** *18–31m* **69** *15–18m* **82** *8–11m (Humboldt), 21–23m* **83** *6–7m, 26–28m* **93** *25–28m (Schouw)* **94** *30–33m* **95** *7–9m, 12–15m, 28–29m* **99** *11–13m, 21–23m* **103** *12–15m, 32–35m* **119** *2–4m* **166** *5–7m* **187** *33–35m* **248** *19–24m* **251** *13–14m, 22–23m* **253** *27–29m, 31–35m/?* **255** *17–20m, 23–24m, 25–26m, 27–29m, 29–33m* **256** *11–31m, 11–13m* **257** *15–24m* **258** *1–2m, 7–11m, 16–25m* **259** *5–8m* **261** *15–21m (Alphonse De Candolle, Von Buch)* **262** *21–26m, 28–31m* **264** *34–38m* **265** *1m* **270** *17–22m, 30–34m/??/w* V. Hooker *35w* p.273 *36–38m, wb* i.e. under countries of similar climate, extant soil & height & inhabited by similar forms the proportions keep similar; this is curious.– **272** *wt¢¢, 12–15m* **273** *26–38m, 36–38m* **323** *29–30m* **326** *11–28m*

MEYER, Friedrich Albrecht Anton *Versuch einer vollständigen Naturgeschichte der Hausthiere, im Grundrisse* Göttingen; Johann Christian Dieterich; 1792 [CUL, pre-B]
tm, v

NB March 19th 1857; Nothing
p.38; 98; 119; 125; 126
I have only skimmed after p150 for the whole a wretched compilation though it seems he is Entomologist
38 *12–15m* **93** *7–12m/1–11w* Gmelin skin on back saccatus **98** *14–15m/w* Angora Rabbits **119** *18–19m* **125** *wb* Molar teeth; 5 toes on hind feet; palmated feet; chief difference tailless **127** *28–29m* **128** *14–15w* Pug

MICHELL, John *Conjectures concerning the cause, and observations upon the phaenomena of earthquakes* London; 1760 [CUL, pre-B, S, I "the Author's Present", i.e. not to CD]
geo, t

NB 16; 459◆; 70
10 vibration from same point; 16◆; 17 & 26 my argument used by Mihell; 46; 55; 58; 70◆
8 *20–22m* **9** *1–2m* **10** *18–20m* **11** *13–16m* **16** *1–2m, 29m* **17** *1–19m* **26** *1–11m* **35** *5–14m* **36** *1–20m* **38** *28–33m* **39** *1–3m* **46** *1–10m* **55** *15–27m* **58** *4–19m* **70** *30–32m*

MIERS, John *Travels in Chile and La Plata* 2 vols.; London; Baldwin, Cradock & Joy; 1826 [CUL, pre-B, S in both vols.]

vol. 1, vii *7m, 8m, 10m, 11m, 13m, 14m, 16m, 18m, 19m* **383** *21–32m* **392** *5w → →* n *7–12z, 19–29m* **393** *1–7m* **394** *1–8m, 14–19m* **395** *1–2m, 6–7m*
℘

MILLER, Hugh *Footprints of the creator* London; Johnton & Hunter; 1849 [Botany School]
cr, em, geo, ig, sp, tm

9 *1–2m* **15** *10–14m/12w* Why not? **40** *4–7m* **46** *3–8m* **60** *20–25m* **68** *6–9m/!* **69** *15–22m, wb* What is embryonic Head of a Placoid or ganoid Fish **83** *7–10m, 24–27m, 28–32m/wb* This assumes no transition of such minute characters **84** *1–8m* **104** *14–18m* **105** *4–7m/6w* Devonian **107** *1–4m* **109** *6–9m (Murchison)* **133** *13–14m* **136** *4–7m* **144** *15–18m, 27–30m* **146** *24–25m* *147* *25–27m* **150** *17–21m* **154** *1–5m* **155** *11–14m* **161** *9–15m/8–11w* too few **162** *28–32m/w* good but too hasty.– **163** *2a "early"* p.161 *1–5m/wt* yet in Red Sandstone two kinds **166** *20–23m* **175** *11–20m* **179** *21u "two"/w* or three? **182** *12u "Brachiopods"/w* & Cephalopods *17–21m* **193** *19–24m* **196** *7–13m (Lyell), 14–17m* **197** *11–14m* **200** *16–25m* **203** *25–32m* **204** *1–4m* **214** *9–22m* **215** *3–7m* **216** *5–7m/w* often cease earlier *7–10m, 10–16m/w* decay when in sediment *13–16m* **217** *7–11m* **219** *22–23m* **243** *17–27m* **280** *19–20?*

MILLER, Philip *The gardener's dictionary* 3rd edn, 3 vols.; London; for the author; 1748 [Down, vols. 1 and 3 only]

MILLER, William Allen *Elements of chemistry: Part 2, inorganic chemistry* 3rd edn; London; Longman, Green, Longman, Roberts & Green; 1864 [Down, FD]

MILLIGAN, Edward *A. Corn. Celsi medicinae libri octo* Edinburgh; Maclachlan & Stewart; 1826 [Down, S] ℘

MILNE EDWARDS, Henri *Histoire naturelle des crustacés* 3 vols and vol. of plates; Paris; 1834–40 [CUL]
af, ch, ci, cr, ds, dv, em, gd, gr, in, is, sp, sx, sy, t, tm, v

vol. 1 NB ⟨*on p. 468*⟩
(Species Theory) p.6. p117. p.184,5
p191 – Hence Branchiae in the Podophthalm Crust. perhaps not so anomalous – not more a new organ than in Cirripedes.
196 p121; 227,8
SB ❑β
186 Newport says in Scolopendra mandibles first formed – Jaws formed before legs in Crustaceans
197 The changes which Crustaceans undergo when hatched are the "complement" of those within the egg
226–8 On 2 methods of classification; that of Cuvier impracticable (very good sentence)

title page *u* ⟨*author, title*⟩ **2** *29–30m/30u "cinq | de"* **3** *1–2m/1u "sept paires"/2u "nommés antennes", 4u "coeur artériel", 6u "sont doubles"* **6** *2–5m, 30–32m* **12** *1–7m* **14** *25–27m* **15** *19–20m* **16** *4–6m/w* V. ● **18** *10–19m* **19** *2–3m, 6–9m, 13–16m/z/15u "généralement"/16u "ordinairement | dernier", 24–28m* **21** *6–8m* **23** *19m* **27** *7–9m, 16–20m* **29** *6–10m* **30** *28–32m* **31** *23–29m* **40** *15–16m* **41** *30–35m* **42** *21–22m* **43** *7–10m* **44** *1–2m, 5–8m, 14–29m* **45** *24–29m, 24–26m* **47** *2–5m, 3–4m* **48** *14–16m* **50** *16–18m* **51** *1–4m* **55** *14–16m, 26–29m, 30–32m 61 17–30m/19u "lame cornée"* **62** *1–4m, 6–8m, 15–17m, 19–20m* **64** *9–11m* **72** *25–30m* **73** *2–6m, 10–13m, 25–27m* **74** *4–6m, 11–13m* **75** *5u "Édriophthalmes", 6–9m, 28–29m* **76** *5–10m, 29m (Cuvier)* **78** *28–29m* **79** *12–14m* **80** *14–18m, 22–28m* **81** *12–13m/5–23w* what difference in branchiae of Stomapods **82** *29–32m* **84** *21–25m, 29–30m* **97** *15–18m* **100** *7–10m* **104** *17–20m, 22–23m* **110** *5–7m, 10–11m, 12–17m, 27–30m* **114** *23–25m/*Q **115** *8–10*Q *11–18m/12w* stemmate **116** *1–2*Q *5–7m/16–24m*✍*/w*✍ Larva of Lepas *10–13m* **117** *1–11m/w*✍ This must be case in Larva of Lepas *6–10m/7w* Sp. Q **118** *18–19m, 19–22*Q *20–22m* **119** *1–2*Q *5–8m, 20–22m* **120** *1–2*Q *4–6m, 17–18m, 28–29m* **121** *1*Q *15–19m/1–19w* Species theory. 2 into 1 – into 2 into none *16–17w* V. Daphnia *26–29m, 29–33m* **123** *12–15m/w* the second pair are the exterior **128** *31–32c/w¢* **129** *10–13m, 31–32m* **131** *21–23m* **133** *5–8m, 10–20w* Cirripedes come near Isopods **135** *21u "nerfs"/→/28a "céphaliques", 29–33m* **136** *20–23m/21u "nerfs gastriques", 25–27m, 28m/u "forment | de"* **138** *9–11m/7–18w* argues with ♣ cirripedes for 1st thora. goes to all pied machoirs &c &c.– Jaws &c *18–24m/w* This is strongest possible argument that 1st cirrus is a pied mach **140** *wb* Pedunculated cirripedes in concentration about = to half way between Astacus & Palemon. **141** *30–31m (Cuvier)* **142** *13–16m 143 8m* **144** *32–35m/34u "la Squilla"* **153** *1–8m* **165** *17–21m, 22–24m/w* not in cirripedes **166** *4–7m* **168** *25–28m* **170** *1–4m* **184** *21–23m/w* mandible already formed *26m/23–26w* ie 7 cephalic segment transformed *28–29m* **185** *wt* Now irregular development does not proceed regularly from ant. to Post. end *4–5u/1–5m/w* ie 1st thoracic segment X *24–27m, 31–32m* **186** *wt* Brullé so far right. *wt* Newport tells me that in Scolopendra mandibles first formed. *3–5m, 4–6m* **191** *6–10m* **196** *25–29m* **197** *13–15m/15u "Complément"* **198** *9–12m* **199** *21–25m* **200** *2–5m* **226** *24–31m* **227** *1–4m, 7–28m, 8–10m, 33m* **228** *24–30m* **231** *24–28m* **233** *1–3m/1u "plusieurs séries"* **234** *9–11m, 12–17m* **236** *2w* (1) *13w* (2) *19w* (3) *wb* (4) – Cirripedia **238** *31–33m* **239** *1–3m, 11–13m* **242** *8–11m* **253** *10u "pates-mâchoires"*
℘

vol. 2 SA ⟨*pp. 50–51*⟩
p42; p50
✍♦ add 2 short-styled out of Orchard
⟨*over*⟩
¢¢♦✍
✍ (Books of Rules)

℘
42 *32–34m* **50** *17–20m, 27–28m* **441** *9–11m, 14m, 16m* **444** *4–6m, 5m, 6–7m, 8u "sept", 9m/u "conformés", 19–20m, 20–22m/20u "au | sept"/22u "le | de", 23–24m, 25–27m* **445** *4–6m/4u "Trois", 14–16m, 25–28m* **446** *2–3m, 10–14m* **448** *1m, 4–5m, 17–18m, 25–27m/w* p471 *46w* p.489 **449** *6–7m/7u "Schiropodes"* **450** *1u "tous les", 3m, 10m, 17m* **451** *22–23m, 26–27m* **455** *29–32m/30u "soit | flancs"* **465** *5–8m/5u "aplati"* **468** *10–11m/10u "La | saillante", 14u "deux paires", 15u "paire de"* **470** *5–6m/5u "feuille", 24–25m* **471** *1m/u "dépourvues | palpiforme", 2m, 3–6m, 13u "sept | huit", 20–21m, 24m, 26–27m* **473** *7–9m, 9–10u "lamelleuses | apparentes", 15–24m, 20–24m, 25–32m, wb* & 1st thoracic legs very small **474** *6m/u*✎ *"très-petites"* **475** *1u*✎ *"il | rudimentaire", 3–4m, 10–11m, 12–13m*♦ **480** *25–27m/25–26u "pates | réduites"* **486** *22–23m* **487** *12–13m, 13–16w* V. p.473 foliaceous *32–*

34xx **488** *7–10m/x/w*✎ Misprint *9–10m, 21–22m* **510** *20–22m*

vol. 3 NB ⟨*on p. 638*⟩
410 On Cirripedia
p412 Even in Copepods organ of generation in last thoracic segment
SB ❑β
555 Difference of Crust, in proportion to separation of area, other things being equal
561 only 2 or 1 Endemic Crustaceans at Canaries Isld
567 Individuals of same species are almost always continuous areas 571–
573 few cases of interrupted ranges
574 Crust individually numerous in Polar seas

5 *13–16m* **103** *5–9m*
℘
349 *1w* Entomostracous 391 **350** *16–18m* **353** *11–13m* **354** *14–18m* **364** *11–12m* **372** *11–13m, 12m* **373** *9–10m* **374** *3–13m/6–8w probly not Copepods* **375** *29–34m* **376** *12–18m* **377** *2–5m* **391** *6–7m/7u "rames", 19–21m* **393** *17–20m* **410** *wb* Cirripedes allied to family of Daphnia only by dorsal anus, ovaria, inflected abdomen & shell – (differ widely in cirri & mouth) & in caeca at cardiac end of stoma – More allied to Stomapoda **412** *4–7m, 17–18m* **432** *5–8m* **433** *29–31m* **434** *1–3m* **437** *26–28m* **447** *22–25m* **448** *12–15m* **539** *17–18m, 21u "yeux composés"* **541** *8–9u "on | paire"/w* answers to 1st cirrus *17–18u "plutôt | paires"* **542** *14–18m* **544** *11–13m/12u "qui | avant", 17–18m, 25–27m* **545** *1–2m, 9–11m* **555** *wt* How explains this, except by single creations *17–23m/1–24w* without regard to anything else – Make a Barrier & you will have species different on opposite sides *wb* I do not think read with sufficient care **556** *29–33m* **557** *4–20m* **561** *21–26m, 22–23m* **564** *11–12m* **565** *2–5m, 15–17m, 23–26m, 23m/u "Palémons"* **566** *32–3m* **567** *9–10m, 16–18m* **568** *1–9m, 11–14m, 31m* **571** *18–19m* **573** *3–12m, 6–7m/w* Interrupted ranges *30–31m/w* do **574** *22–23m/19–24w* Arctic Sea likes big lake **588** ⟨*u*✎⟩ *11u "versans | Atlantiques", 14–15m, 15u "Ptalycarcin", 17–18u "pas | Antilles", 20u "au Chili", 21m/u "au Chili", 23u "Callianasses", 24–25u↔, 29–30u "à | Hollande", 32–33u "Hippolytes"* **593** *11m/w* Mouths *14m/w* Mouths **597** *10–39[...]*✍ **600** *39w* 2 **601** *4w* 3 **602** *40w* 3 **603** *15w* 4 *32w* 5

MILNE-EDWARDS, Henri *Introduction à la zoologie générale* Paris; Victor Masson; 1851 [CUL]

ad, cc, ch, ci, co, ct, em, fo, geo, he, hl, ig, in, mn, or, phy, rd, sl, sy, t, tm, v

SF ❑β
7 Diversity of organisms first condition of nature (Ch 4)
9 Law of "economy of nature" "sober in innovations" – Q✍ has not recourse to any new creation of organ. other strong expressions on do p.10 Q
13 nature varies degree of perfection Q 14 as embryonic development
31 On Highness & Lowness 25 to 34
35 Division of Labour Q p.57 do 60, 61x◆ Q
43 Beautiful gradation in stomach Q– 63 in Respiration Q; in annelid surface & body near legs.
x 61 Q Nature rarely introduces a new organ
p.64, 65 In Squilla new organ introduced Q
◆ but cirripedes have shown how cautious one must be 118 do ◆ 121 do Q
68 Q Clearly admits that new organs are at last created. 118 do
96 On Embryological similarity p98 mistake of Branchial slits p102 not arrest p112 p114
111 Point in Classification.
124 Parallel series
126 on animals "borrowing" (instead of inheriting) structure from other class.
132 on different kinds of fusion or unison 137
132 Rudimentary organs tend to become separated from proper connexions!
138 absolute disappearance of organs
141 Law of Balancement of minor importance
148 Law of connexion 151,154
161 If one part is changed others are changed (so with varieties of & monstrosities of gross nature)
163 on various empirical connexions of structures
165 On subordination of characters i.e. character in connexion with other (Jussieu) 169, 166 doubts this pp171
172 on value of characters in classification
NB1 ⟨*refers to Catalogue attached to book*⟩ 18 Milne Edwards Books; 26 Decaisne Cours Floriculture et Potage✂ 7.6
NB2 ◆ 132–137 Jussieu primordial

iv *4–7m* **7** *at* ⟨*page number*⟩*, 13m* **9** *3–4m/3u "sobre d'innovations", 5–6Q*✍*/6u "autant | est"/7u↔, 10u "loi d'économie"/Q 28–30m, 30–31u "aucune | nouvelle"* **10** *6–7m/7u "rendent avare", 8–9Q 12u "quarante", 23–25m/24u "seule | physiologique"* **11** *1–5m, 13u "apus", 18u "Céphalopodes", 24u "Reptiles sauriens", 26u "Lépidoctée | Mississipi"* **12** *32m* **13** *13–16m*

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14 *16–20m* **16** *17–22m* **17** *1–3m* **21** *9–17m/11u "puissance"/12u "perfection"/15u "quantité"/16u "qualité", 20–23m/22–23x, wb* x Best way of putting superiority.– though each perfectly (?) (Can young be said to be <u>perfectly</u>?) adapted to conditions. **22** *7–8u "il | vie", 18u "grandeur | résultats", 20u "masse | dont"* **25** *4–9m* **26** *2–5m/xx/wt* Is true individual? Gigantic Saurians.– Cetacea – Pachydermata Devonian Sharks *17–18u "on | celles"/w* Megatherium? **27** *wt* How value secreting, muscular & nervous ♣ organs. *2u "n'entraîne | nécéssairement", 8–10m, 10m/x/u "la | dont"* **29** *wt* So relation of size to warmth of Climate *1–4m/3u "cette nature"/4u "ce | seulement", 16–17m/17–18u "se répéter"/16–20w* vegetation repetitive cellular division **30** *1–5m, 9–12m* **33** *25–31m/27–28u "précision | actes"* **35** *13–15m* **42** *14–28m* **43** *6–20w* beautiful gradation **57** *1–3m* **60** *8–11m, 15–18m* **61** *9–11m, 15–17m, 25u "un | nouveau"*/Q **63** *23–32m/24–25*Q **64** *8–11m, 13–21m/14–15*Q **65** *1–13m/1–3u "d'organes | perfectionné"*/Q/*4–5u "déterminent | surface"* **66** *28–31m* **68** *12–16m, 24–25m/24–28u*±, *31–32m* **70** *25–31m (Prévost and Dumas)* **74** *17–20m* **80** *30–32m* **81** *1–3m* **85** *5–11m* **86** *10–13m* **94** *28–32m/28u "Généralisant | vagues"* **95** *15–18m* **97** *20–24m (Tiedeman, Serres)* **98** *4–11m, 12–17m* **102** *18u "est | mouvant", 20–25m, 24–26m, 29–32m/30u*↔ **103** *9–13m* **105** *5–10m* **107** *9–14m* **109** *6–9m, 25–31m* **111** *6–8m, 23–29m* **112** *9–12m, 12–18m* **113** *12–14m* **114** *12–16m, 23–26m* **115** *7–8m, 11–12m* **117** *18u "besoin | variété"/w* poor! *20u "tendance | économie"/w* poor! **118** *11–13m/12–13u "puis | instruments", wt/1–13w* This very important: if proved upsets changes in species **119** *8–10m*♦, *27–32m/27–31m/29u "types fondamentaux"/31u "types secondaires"* **120** *12–13m* **121** *24–30m/24*Q *26–28!!, 28–30u*↔*/?, 31–32*→ **122** *25–26u "un | exemple"/24–27w* ? only functionally or physiologically new **123** *11–16m, 9–13w* natural enough by Selection *19–22m/21u "Dacgtylopère", 29–32m* **124** *14–17w* Marsupial parallel **126** *1–32w* what metaphorical rubbish, how much simpler my view **127** *1–4m, 9–12m* **128** *4–10m* **130** *5–9m* **132** *3–4m/3u "fusion primordiale"/4u "développement confus", 26–28m* **137** *15–16m/16u "un | confus", 19–22m, 23–25m/24–25u "la disparition", 26–32m/26u "jeune"* **138** *17–22m, 25m/u "la répétition", 30–32m* **139** *10–13m, 17–19m, 31–32m* **140** *3–4m, 10–14m* **141** *18u "vitales | pouvaient", 20–26m (Geoffroy St Hilaire)/22u "loi | balancement"/23u tenir compte/26u*↔ **142** *1u "ce chevaulement", 16u "la carapace"* **143** *17u "texture | propriétés"* **148** *17–20m, 19u "connexions anatomiques", 1–23w* because even monstrosity could not invent–; manner of growth + hereditariness p151 *20–24m, 25–27m (Geoffroy St Hilaire)* **151** *13–14m, 18–21m/w* if can be moved by steps **152** *4u "La | rapports", 5u "tendance"* **153** *15–18m* **154** *4–14m/wt/1–15w* are not these parts last-formed in womb & so exposed to modifying circumstances? *28–29m/!?/17–32w/wb* one feels an early embryo more independent of outside world, but why? so less apt to <u>vary</u> – the late-formed parts exposed to sum of influences & to selection; selection cd not act on embryo **158** *13–19m/13"...* **161** *24–25m* **162** *1–3m* **163** *9–11m, 15–16m, 18–23m, 28–32m* **164** *9–12m, 10–15m/10–11u "harmonies empiriques"* **165** *9–10u "principe | caractères"* **166** *18–20m, 26u "répondre affirmativement", 28–32m* **168** *9–12m* **169** *26–27m* **170** *25–29m* **171** *6–11m/8u "conséquences"/10u "effets"* **172** *2u "caractères prédominants", 8–16m, 17–19m, 20–22m/20u "système dentaire", 30–31u*↔*/?* **173** *1–7m, 7–15m, 21–32m* **Catalogue, 12** *9–11m (Milne Edwards)* **18** *8–11m, 17m, 29–31m (Decaisne)*

MITCHELL, Silas Weir *Researches upon the venom of the rattlesnake* Washington, The Smithsonian Institute; New York, Appleton & Co.; 1861 [CUL, S]
beh, phy, sy, tm, v

SB ✍
5 Powers of fascination
12 Relation of Poison to Venom glands
37 do
43 do
✏ 66 classed

5 *10–14m* **12** *41–42m* **13** *7–8m* **37** *32–35m, 42–45m* **43** *1–9m* **66** *39–44m/w* so with Rabbits – So illustrates variability
℘

MIVART, St George Jackson *On the appendicular skeleton of primates* (extract, pp. 299–429), communicated by T.H. Huxley; 1867 [CUL, I]
h, v

SB 403 Variation; 410 & 412 Man; 424
403 *29m/u "digit", 38–41m* **410** *31–33m, 35–37m, 38–40m* **411** *3–5m, 9–10m, 11m* **412** *3–6m*
424 *35–38m*

MIVART, St George Jackson *On the genesis of species* London; Macmillan & Co.; 1871 [CUL, I] ad, af, beh, cc, ch, ci, cr, ct, ds, dv, em, ex, fo, gd, geo, h, he, ig, mm, mn, oo, or, phy, r, rd, sl, sp, t, ta, tm, ts, ud, v, wd, y

NB1 ♦ Mivart; p15 I do not understand; 15; 35 false quotation; 54; 60x Not fair; You entirely ignore use – 67 Use entirely overlooked
NB2 Sp. Theory; p120; 145 Distribution Geographical; 155 Homologies
Vol 3 p.327 of Cyclop of Anat & Phy. on Larynx of Kangaroo – Owen in Phil Trans p.182 Gascoyen

SB1 ❑β ✍ ⟨*by Emma*⟩
Mivart Genesis of Species
p21 List of his objections
25 Giraffe, with MS notes
34 On variations in all directions MS notes
37 Flat fish.
39 Origin of limbs ⟨*CD*, ✏⟩ do not consider
40 Whalebone
42 Larynx of young Kangaroo ⟨*CD*, ✏⟩ (add after Whale)
⟨*CD*, ✏⟩ 44 Pedicellariae
46 Metamorphosis of flies.
47 Mammary glands ⟨*CD*, ✏⟩ & p42 for Larynx
50 Cobra.
53 Rods of Corti
62 Objection demonstrably sufficient
72 The shoulder of pterodactyls.
75 & 77 ear & eye of cuttlefish v. MS notes
80 ⟨*CD*, ✏⟩ Avicularia
81 Placentae of mammals & sharks.
82 Resemblance of mouse & marsupial.
85 Effects of conditions on butterflies from Wallace
97 Modification as great as between Hipparion & horse –
⟨*over*⟩ Mivart Genesis
105 Abortion of finger in the Potto
107 believes wing of birds comp. suddenly developed –
107 On origin of tendrils ⟨*CD*, ✏⟩ [see p47]
110 Macrauchenia a very generalised structure.
112 M.S. notes on suddenness of var. good –
130 Seems to believe that bat & pterodactyle suddenly developed.
139 Argues rate of change in progenitors before their divergence from the amount of difference in their descendants
145 The same fishes in distant continent
148 Plurodont lizards & certain insectivora in Madagascar –
153 & 158 Diff. from homologies of skull bones.

163. H. Spencer on ♣ serial homologies
164 Mivart thinks there is an internal force or tendency.
170 There is serial homology in Chitons
⟨*over*⟩ Mivart Genesis
174 Correlation very slight between teeth & hair
176 Homology between limbs & fins.
178 M.S. notes on primitive homologies.
⟨*CD*, ✏⟩ p107 sudden change of Birds wing.–

SB2 ✍ Kangaroo Larynx; Strange arrangement 125 & Pottos forefinger
⟨*CD*, ✏ *hereafter*⟩ See to Mouth – Find "Brewster" on age of Cephalopods –
Placentae of Sharks & Mammals – like Fritz Mullers cases & Claparede –
Mr Mivart's book consist of all objection to nat. selection advanced by various authors & myself, expanded & admirably illustrated, with nothing said in favour, except in opening chapter
p147 Get Gunthers Catalogue
p196 Morals ☞ over
⟨*over*⟩
(drawing of lens)
Evolution whether N. Selection is admitted is all important, as long as changes gradual, for then facts can be tested, for scientific purposes Mr Mivarts belief that sudden change, as Horse & Hipparion, & I suppose – Birds bats & Pterodactyles (otherwise his argument of intermediate not being found wd be valueless) seems to me no gain over the old belief of separate creation: Of course it may be true, but will be most difficult to prove

21 *17–19m/18a "useful structures"* and useless *20–24m* **24** *15–21m, 27–30m*✍ **25** *17–18u "supposition | tended"/17–20w* only tallest animals in each country **26** *7–9m/w* only dense forests **27** *16–25w* Variations not supposed – too large an animal for country *27–31m/29w* (a) *wb* (a) If large antelope & giraffe can now exist or flourish under so much competition, so cd intermediate sizes **28** *1–23w* We do not know whether in all countries trees are as nutritive as Mimosa *23–26m, wb* Escape other beasts of prey **29** *4u "these | drought"/w* No **34** *7–13m/4–12[...]/m/wt/1–13w* I do not see.– no because only the most like some object wd be selected.– if exactly equal Variation they wd counterbalance each other.– *wt* M. on ● (there I do allow ♣ to the m○ of my doubts) **35** *3u "mimic"/w* Mock *12x* **36** *13–17m, 28–31m/w* I do not see **37** *8–10m/8[.../8–10w* see Portfolio on gradation *fig.w* Ask Gunther *15–22m/22[... **38** 3–9m/5...], 19u "functionless"/w*♦ No no **39** *wt* we have no means of judging *7–14w* idle objection **40** *3–7m* **41** *wt* (Straining or sieving action.) *7–15m/"...", 11–12w* Ducks Beak **42** *24–30m/[...]* **43** *1–2w* Voice *3–6w* ie about Kang & also all oth **44** *32–34m/13–34w* Cirripede Branchiae first nascent structure applied after to other uses. *24–27m/[...]/w* (a) **45** *1w* He adds *2–7[...] 8–10w* never useful structures **46** *9–12m/9–14w* Lowne explains intermediate conditions **47** *17–21m/[...]/w* p.53 *22–26m/22u "mammary|breast", 22–27[...]/24u "sucking|scarcely"/w* Mucus massage fails *28–34m, wb* M doubting about sucking; but to this kno does not run **50** *fig.w* Mem snake devoured by Peacock in India to frighten enemies **51** *5–11w* M ● Linn Soc Fascination *30–34m/w* not in native country **52** *11–14m* **53** *25–28m* **54** *1–17m/4w* No *10u "only|enjoyment"/11u "perfect|performances"/6–15w* are used for some other purpose – Crustaceans **57** *9u "escaped"/w* No **60** *1–12w* not fair not to add **61** *22–23m/23u "seems irresistible"* **62** *wt* with mimickry init. resemblance ♣ more distant to one var. & in another to another var. *3–8m/6w* (a) *15–17m/15u "demonstrably insufficient", wb* I have never said demonstrated but in highest degree probable **67** *8–10m/w* so do I *21–24m* **72** *25–29m/wb* Here add that Mr Mivart sees such strong improbability○ I cannot see it.– Variation analogies do arise **75** *11–15m/w* he always omits the share of selection **76** *33m* **77** *wt* Remember what structure is necessary for vision Lens are found in Annulosa *4–6w* I utterly deny *6–11m, 7–9m/7–8u "independent|variations"/w* (a) *16–21m/w* what does this mean? *wb* (a) you cd not make greyhound & pug – pouter or fantail thus – it is selection & survival of the fittest **81** *19–27m* **82** *1–7m* **84** *23–27m* **85** *1–7m, 25–31m, 27–33m, wb* Direct conditions **97** *16–18u*↔, *17–19m/19u "Hipparion|Equus"* **98** *1u "sphenoid"* **102** *22–27m/23–25w* false quotation **105** *11–16m/11w* disuse **107** *1–3m/w* oh *5–7m/w* see my paper. **109** *9–12m/!* **110** *6–12m* **112** *2–7m, wb* Says variation, of which we have evidence, & not exceptional cases were suddenly changes & unnatural changes, such may sometimes have occurred. *wb* As dom. productions so much more variable, these variations probably greater, & the strongest partake of nature of Monstrosities.– In large genera, – very known in nature, including recent & fossil, the species are so close, that steps probably not great in line of death. **119** *13–17m/13–21w* we do not know causes of variability **120** *13–17m/w* yet it varies in W.Indies. *21a "some"* most **121** *19–24m/19–30w* I say so merely because other reasons make me believe in it. **123** *wt* Do I not give it as a mere possibility when arguing against this view? *2w(a) 6–11m* **130** *1–5w* Does he believe that a Bat & Pterodactyle was suddenly produced – such facts tell against Evolution, as well as nat. selection.– so with Whale & Zeuglodon – **139** *1–34w* this seems false reasoning, he assumes amount of difference in progenitors from amount in existing divergent descendants. **145** *22u "distant" 23–31m/27–28u "is|fresh"* **146** *5–13m (Günther), 31m* **147** *2u*♠, *3u "China|Moreton", 4–6m, 10–12m/w* ask Gunther *23–24m/22–28w* Is this an aberrant & ancient form **148** *1–11m, 15–17w* Distinct genus *25–27m/w* no remnants **151** *20–24m* **153** *2–6m* **157** *17–19m* **158** *11–15m* **159** *1–3m (E.R. Lankester)/w* I have called analogy **163** *23–29m* **164** *16–18m/17u "is|tendency"* **166** *9–13m* **170** *16–20m, 20–22m* **174** *wt/1–12w* So add, but the connection, if any, as Mr. Mivart provided not extremely vague.– some evolutionary tendency in both to vary together *13–15m* **175** *1–3m, 13–16m* **176** *6–12m, 16–18m/14–28w* ask for Günther's view **177** *12–13m/12u "tarsus|cartilaginous"* **178** *wt/1–11w* Parts primordially similar wd be apt to vary in same way, but can be congruent to any extent – to moderate extent – Veronica.– How primordially similar, is an obscure subject.– repetition of past one of commonest forms of variation. **179** *11–14m, 24–27m (I. Geoffroy)* **182** *10–13m/11u "Gascoyen", 20–22m* **192** *18–22m* **196** *1–17m, 26–29m/27w* No **197** *2–11m* **198** *15–20m* **200** *19–24m* **204** *7–14m* **212** *15–21m*✏*/wt/1–21w* Not longer duration than gemmules of atavic structure such as stripes on Horse. **213** *2–8m. 10–15w* like pollen-grains within ovule **214** *28–32m*✏ *(Lewes)* **215** *6–8w*✏ gemmule & germs *10–14w* absorbs organic matter & divides *19–20w*✏ true *21–25m*✏ **217** *24–30m*✏ **221** *12m, 24–26m* **223** *11–13w* from conditions **225** *5–7m* **226** *15–20m* **227** *21–23m* **230** *9–13m* **231** *6m* **232** *4–19w* How great, see my remarks at end *20–21m/21u "greatly different"* **239** *27–30m, 31–34m, wb* differs only in colour & size? **240** *3–5m, 25–28m/27u* **242** *wb* Urges any amount of sudden variation of which we have evidence, & not monsters (& not reversion) I will admit, but probably less than we see under Domestication.

MIVART, St George Jackson *On the genesis of species* 2nd edn; London & New York;

Macmillan & Co.; 1871 [Down, S]
48 *17–22m*
℘

MIVART, St George Jackson *Lessons in elementary anatomy* London; Macmillan & Co.; 1873 [CUL, S]
h, ig, rd, tm, v

NB1 ♦ Rudiment in Gorilla
Inguinal mammae in Lemuridae & 2 pairs in Galago → ⟨*to NB2, 489*⟩
NB2 125 Hyoid Bone
♦ 396 Lobule of ears
489 Mammae
496 Difference of Man→
→tiny distance under an anatomical point of view

125 *6–9m* **396** *19–22m, 27–29m, fig.m* **489** *42–44m* **496** *20–25m*
℘

MIVART, St George Jackson *Man and apes* London; Robert Hardwicke; 1873 [Down, S]

NB O/

MOGGRIDGE, John Traherne *Harvesting ants and trap spiders* with supplement; London; L. Reeve & Co.; 1873 [CUL]
beh, che, fg, gd, oo, y

vol. 1 NB1 Very clearly ♣ described Wallace
NB2 p.36♦
p.128 Young spiders make web as perfect as old ones <u>Q</u>
The seeds stored in ants nests not germinating – these cutting off the radicals & bringing up damp seeds to dry are the most remarkable instincts
Trap door spiders very wonderful
Perhaps add to when I specify the wonder of ants

xi *3–5m* **128** *5–12m (Blackwall), 14–16m*

Supplement, NB1 p.161; 164
174 acid on seeds
p.161 closely allied species in the same district have different habits
164 curious instinctive manner in which Cicendela seizes ants
174 acids & seeds

161 *7–15m, 20–24m* **164** *1–23m* **174** *4–15m*

MOHL, Hugo von *Principles of the anatomy and physiology of the vegetable cell* trans. A. Henfrey; London; John Van Voorst; 1852 [CUL, S]
ct, mhp, mn, no, phy, sp, tm

NB1 Drosera; Cells; 37 Protoplasm; 38 do; 79 do; 84; 87 nutrition; Drosera 99; 100
76 Sp. theory; 109 do; 133✍ On Grafting various forms number of pollen-grains in some plants.–
Chlorophyll not absorbed so purple♦ suppuration from the purple fluid must be protoplasm
NB2 Orchis 133
147 Tendrils, 151 to 156 to end
143 Knight on gravity
146 Roots turn from light
158 Bot. Zeitung

25 *13–16m* **26** *39–42m* **28** *8–12m* **29** *1–4m* **37** *38–47m, 44–46m* **38** *1–16m, 3–6m, 24–39w* speaks as if nucleus necessary **39** *20–24m, 40–43m, 45–49m* **40** *24–31m* **41** *16–20m, 47→* **42** *2–7m, 34–37m, 37–40m* **44** *3–9m, 14–18m (Kützing)* **75** *28–32m* **76** *30–35m* **79** *22–26m, 34–36m* **84** *46–49m* **87** *44–48m (Bouchardat)* **93** *16–25m, 36–38m* **95** *14–25m (Brown)* **99** *25–32m (Schulz)* **100** *19–27m* **109** *36–43m* **133** *36–40m (Kölreuter)/39u "120,000 pollen", 40–45m* **143** *34–47m (Knight and Dutrochet)* **146** *40–46m* **147** *1–6m (Knight), 24–29m* **148** *47–50m* **151** *45–46m* **154** *22–27m (Dutrochet)* **156** *11–17m, 29–34m, 35–48m (Treviranus), 35w* Phyllt **157** *9–21m, 17–19m/18u "of which", 24–27m/?, 41–46m* **158** *3–9m (Dutrochet, Mohl)* 14–19m

MOHL, Hugo von *Über den Bau und das Winden der Ranken und Schlingpflanzen* Tübingen; Heinrich Laupp; 1827 [CUL, pre-B]
ig, mhp, no, phy, rd, sp, t, ta, tm, v, y

NB p.39 Lygodium; ✍ p.112 Species Theory non-climbing Plant – occasionally climbing; 125♦
SB1 ❑β ✍
<u>1 Summary twiners</u>
All objects same – twiners either way – glass – will clasp when young & grow – Palm.–
✏ America ● arboreal ● most highly organised tendrils
Dropping off or withering up of uncaught tendrils – these results useful special contraction after clasping or formation of links○–
Anyone who did not understand the ● of the movement of the t. would conclude that as the internodes revolve & carry the tendril, & as these at the same time are revolving, that the tendrils would necessarily twist in♦ advance♦ more quickly than the internodes & get in advance of them one♦ internode♦ instead of both moving harmoniously

together as is the case. But in fact the ♣ t. incurves to the ♣ upper internode of a twining plant when several are revolving, ♦ but is ♣ generally separated from it by a rigid petiole; & in the former part of the P. it was explained how ♣ several internodes revolve together by their whole length successively moving to all points of the compass. There is, however, this difference that in many cases the revolving t. is separated from the revolving stem by the rigid petiole; ♣ but this makes an important differn in the movement – There is another difference, ♣ namely that ♣ along the ♣ part from which the tendril ♣ arises, the terminal & motionless young shoot almost always projects; this ♣ generally projects on one side, so as to be cut of the way, ♣ of the tendril which at the time is revolving; but when it is not sufficiently not of the way we have seen in E◗ how well the t passes this obstacle in its path, by shifting & straighten slowly, & rising vertically upwards.–

⟨*over*⟩ ⟨*various plants listed, with rates and amounts of twining*⟩

SB2 Palm♦ Mohl on Twiners♦ Tendrils
p.4 Tamus elephantoides X✏ – & Paullinia winding stems & tendrils it is one of Sapindaceae.
37 gradation of leaves with tendrils
39,50 Astragalus rudimentary tendrils No✏
39 Lygodium leaf-climber
40 Cocculus Leaf-climber– ●– Ophioglossum leaf-climber
41 Uvularia like Gloriosa Nepenthus✏ – Smilax stipulae
43 Fumaria claviculata tips of branches converted into tendrils
45 Maurandia scandens – flower peduncule irritable♦ – Sapindaceae – on Vines 47 Passiflora
49 Vanilla
52 on winding of tendrils spontaneously p78
57 tendrils increase rapidly in strength
59 on spontaneous winding with notes by self
63 Sensitiveness of t. touch does nothing!! look (too old) S.65
65 convex side not sensitive ✏ in Cucurbit & Passiflora
70 Virginian creeper
77 Vine creeper point to N. & dark. other t. not affected by light
82 will wind on glass, tendrils
⟨*over*⟩ Mohl on Twiners
103,108 twisting cause of revolving movement
111 no twisting of axis when plant twines! round smooth support & old twisting disappears
112 a plant already twisted cannot twine!!
do. stems♦ sensitive♦
♦ 112 Asclepias X✏ vincetoxicum twines only when it grows in most shady places
116 Experiments on odd ♣ supports, showing influence of light,
♦ 119 Twiners care little for light, especially Ipomaea
♦ 125 Abrus a right-hand winder
♦ 135 will not twine round very thick support
♦ 135 Hooks on certain twiners, specially Ipomaea muricata
♦ 149 has seen axial twisting vary in same plant
SB3 Palm
SB4 Bull. Soc. Bot. de France Tom V 1858. Dutrochet. Comptes Rendus. 1843. Tom. 17. ⟨*over*⟩ Comptes Rendus 1844 Tom 19.
SB5 1864. Weights ⟨*table of equivalents*⟩
⟨*over*⟩ 1863 *¢¢*

2 *8–9u "Bewegungen* | *werden"/8–10m (De Candolle), 16–21m/w* Tendrils & winding plants totally different **4** *5–8m/w* Touch not mentioned *24–26m, 25–26u↔/x*✎, *30u "Paullina", wb* Paullinia winding stem with cissus **5** *9–10m/9u* ♠*/10u "in* | *auslaunen", 21–22x*✎*/21u "Vicia tarba"* **6** *1–3m, 4c*♠*/w* 214 *5c*♠, *6u*✎♠*/m, 11c*♠, *13w* Sapindaceae *14w* ♠, *15c*♠, *16–20w* All worked with Lindley *18w* ♠, *22w* ♠ **31** *28–31m* **33** *10u "bei* | *Strephanthus"/10–12w* ! Apocynaceae *13–14m/x*✎*/13u "bleibt* | *Abfallen"* **35** *19–20m, 21–24m/w* Oenius Gloriosa **37** *24–25m/x*✎*/26–29w* gradation yet jump **38** *25–26m/25u "äussern"* **39** *11–12m/11u "die* | *aufrechtem", 18–19m/19–20m/16–20w* Rudimentary *22w* Leaf climber *36m/x*✎ **40** ✎ *3–5m, 23–24m/w* Leaf climb **41** ✎ *6m/u*♠, *32–33m* **42** *1–2m, 8–18w* none of these seem to catch **43** *16–17m* **45** *4–5m*✎, *8x*✎*/w* all wound into a tendril *10–12m, 12u "die* | *Traube"/12–14w* does not say whether catches *19–24m/20u "die* | *ist"* **47** *9u "zwei* | *tragenden", 23–25m/x*✎, *31–34m (Jussieu)* **49** *4–18m*✎*/9–16m* **50** *4–7m/x*✎*/w* Mucro in Legumin *18m* **51** *31m* **52** *20–23m/x*✎ **57** *12–13x*✎*/11–13m/w* t. grow strong & long **58** *11u "dem* | *durchaus", 13u "Blattstiels", 31–32m/18–35w* seems to think lateral movement consequent on twisting ♣ **59** *11–14!!/12–13u "da* | *Bewegungsfähigkeit", 13–14m/u "die* | *Spirale", 18m, 21–22u "Fläche* | *Uhr"/20–24w* Gloriosa winds up differently from ordinary tendrils. *22–34m/33u "Korkziehers"/w* Smilax does not wind up. B. un◗ not Vines do not? Cissus does when it catches **60** *1–*

10m/w does not at all understand reversed twisting of tendrils *10x✎/u "der | innen"/11–12w* i.e. sensitive side **63** *9u "eine | besitzt"/ 8–10m/w* Tendril sensitive *13–14x✎/!!/u "Einfache | Berührung", 16–23m/18–27w* Touch does nothing were they too old?? I presume expected movement too soon *26x✎/!!!/u↔* **64** *1m, 2–3x✎/u "gerade | Zusammenwinden"/w* this looks as if he took too old– *13–15!!/15u "von 24 Stunden"* **65** *2–5m✎/x✎/w* convex side not sensitive *3a/u "Passiflora"/w* & Peas *21–22m/u±/x✎/?* **70** *18–20m/w* Virginian creeper **71** *8–9u±/9–10x✎/7–10w* swelling in all parts when touch *20–21x✎ "Vollendung | Längewachsthums"/w* Ament○ **75** *13–14m/1–21w* Astonishing that he did not see spont. movements.– I presume too old **77** *5–6x✎/1–10m/w* Grape tendrils point to north & to wall *13–20m/w* not common to other tendrils of various plants kept in House *24–27m/w* so with Pea **78** *27–30m/x✎/28–29u "während | herabsteigt"* **79** *1–3m/x✎/2–3u "welche nothwendig"* **82** *wt* Big. cap & cot wd not stick *6u/wτ/4–6x✎/m* **105** *14x✎/11–15m/12–18w* seems to consider twisting in axes cause of movement *26u "eine"/27u "drei | sechs"/22–26m/23–24x✎/w* number of twists *29–32w* end becomes spiral *30–34m/31–32x✎, wb* (a) I presume from each lower part of internode ceasing to move or acting like a fulcrum– **106** *1m, 6–7m* **108** *16–17x✎/13–19m/w* accounts for movements by spiral twist **109** *6u "mehreremal"/6–8w* passed mark many times in day. **110** *wt* He shows well how climbers get to their support. *4–5x✎* **111** *wt* movement ceases when plant comes into contact with support!!! *4–7m/4u "hört"/6u "auf"/w* (a) *13–14m, 15x✎/13–16w* Vascular fibres○ do not become twisted when plant twines round stem? *19–28m/22x✎21–26w* When plant twines axes not twisted !! **112** *4–6m/4u "Kreisbewegungen"/wt/1–4w* This looks as if he knew tendrils performed a circle. *11–16m/16u "sich | schlingen"/8–13w* a plant which is already twisted cannot climb!!! *21–25m/w* twining plants have sensitive stems!! *33–34u♠/33–36m/w* twines are not according to place of growth *wb* I must explain why tendril bearing plants do not twine – tip does not move in some – **116** *12–13x✎/12–33w* experiments on odd shaped support strong influence of light **119** *2–4m/w* do not so much incline to lighter *6–9m/8–9u "sich | richten", 14m/m, 16u♠/16–22w* This plant cared paticularly little for the light *29–32m* **120** *7–8m, 9–13w* Yet light some influence on Ipomaea *20m, 22–34w* Explain little effect of light by all sides turned to it – will not do **122** *11–13m/12–13u "sie | Kreisbewegungen"* **124** *32–34m* **125** *1–4m/2u "Gattung | Familie", 22x✎/w* Legumin. **126** *29m* **130** *29–30u "bei | vorkommen"* **134** *3–4x✎, 4–12m/5–9w* Every thread suffices to wind on *17m, 22u "von | Zoll", 31u "3 | Zoll", 32u "9 Zoll"* **135** *1m, 3–19w* will not wind round a very short stick.– I suppose movement not arrested till bent considerably & movement acts on opposite side *32–36m/35–36m/32w* Hooks **139** *5–7m/w* spiral arrangment of vessels **140** *4–6m* **143** *32m* **147** *5u "findet | desselbe"/4–6w* Palms sole proof of identity *28–32m/!!!/29x✎/u "um | gedreht"* **149** *4–6m/w* He disputes this *7x✎, 8–12m/w* and says owing to Stutz not being smooth *15m/u "an | Internodien", 18u "beobachtete | ebenfalls", /15–20w* he has seen twining in opposed directions *23–25m, 30–32w* Disputes Cuscuta case **150** *23–30m/w* Palm did not discover irritability of Tendrils **151** *2u "Rückwärtsbewegung", 9–11!!/m, 12x✎, 16–18m/16x✎/16–17u↔* **152** *7–10m, 15–18m/ 15–16x✎/u↔*

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cc, phy

vol. 2 NB 43 particular earth good for particular plants
43 *7–34m*

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⟨markings presumed to be by FD⟩

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gd, gr, he, ve

vol. 1 NB1 369 Pace of Horse inherited
Earthquakes
3–8◆
33 globe of fire
NB2 30; 36; 57; 62; 81; 95; 102; 105; 114
earthquakes
NB3 earthquakes

28 *15–18m* **30** *15–28m* **33** *6–37m/29w* Copiapò earthquake **36** *18–32m* **57** *26–30m* **58** *1–5m, 6–8m, 17–18?, 19–23m/w* Not to where I say no map of sea **59** *1–7m* **62** *14–19m* **63** *5–15m* **73** *5m* **76** *25–27m/u*↔ **81** *28–30m* **82** *1–9m* **95** *15–29m* **100** *19–25m* **106** *1–11m, 13–24m* **114** *9–13m* **223** *22–26m* **262** *7–15m* **268** *1–16m* **294** *20–28m* **301** *25–30m* **302** *6–12m, 12–13u "ladran", 13–15m, 16–20m/13–20w* do the early voyagers say anything about dogs in T. del Fuego **304** *26–30m/w*✍ V. p.330 **330** *21–23w* V 304 **331** *7–8m, 10–28m* **343** *15–29m* **368** *3–5m* **369** *22–25m* **370** *9–13m* **373** *zb* **376** *20u "Los Pehuenches", 22–23u "cabrones especie"*/Q **418** *wb*✍ Birds p. 257 Quadrupeds p.301

MONIEZ, Romain *Mémoires sur les cestodes* Part 1; Paris; Octavo Doin; 1881 [Down, I by Alfred Giard] ℘

MONS, Jean Baptiste van *Arbres fruitiers* 2 vols.; Louvain; L. Dusart & H. Vandenbrock; 1835–36 [CUL]
cc, ch, cs, f, gd, he, hy, or, phy, sl, sp, spo, t, ta, tm, v, wd

vol. 1 SB1 440 to 446; 450; 453; 458 & 457
◆ In first origin cd not have been transported must have sported in nature & not grafted; 472; 478; 486
SB2 ◆ I think much must be attributed to selection of good sorts
◆ =He mingled his seedlings=
p.215; 218; 221; 225; 230,1,3,4,7; 247,8
◆ Old cultivated kinds tend to vary loose the hereditary quality of goodness
254–6,8; 322; 373; 400; 406; 410; 415; 430,32,34; 437,39; 441; 446
⟨*over*⟩

successive generation. at short intervals, with selection, the key
113; 115 not fixed
160 162,4 Chief end of his system is to domesticate them, ie to give them the effects which richer soil & cultivation will give
172– 179– 180– 183– 184
This system chiefly illustrative of effects of external conditions on successive generations. & fixity of the characters ie goodness – not injured by seasons – taste & consistence ♣
Short period of renewing must be an element if he is true about earliness – yet not applicable to animals
187 to 209

SB4 □β
115 Cannot account why one stock increases size of part more than other (p113)
180 183 with his successive sowings there was selection; & it is valuable case that after last, he got great majority good p203 almost all good. Whence it is proverbial 204,206 that if you sow seeds of any ordinary good fruit very ◊ you get anything good. Law of character becoming fixed with selection by successive generations 247–472
186 215 Seed not ripe (probably to cause sterility in offspring; & from first fruit, weak
230 Great changes take place at first sowings??
400 "Variation est une chose insatiable." Elle entre dans un sentier sans issue et plus elle advance moins elle peut reculer"
406 Facts against pears crossing in adjoining trees
431 Cd tell by leaves or growth 800 or 900 Pear Trees
437 Has never got seedlings identical with parent
444 Wild seedlings like domestic apples &c – 446 Q✍

℘
113 *23–27m* **115** *6–10m*
160 *5w* Origins *6–13m* **162** *2–6m, 15–21m* **163** *6–10m, 14–19m, 20–24m* **164** *17–22m, 22–25m*
℘
172 *9–12m, 13–19m/13–14w* like cabbages **179** *3–6m, 27–30m, 32m* **180** *2–4m, 6–7m, 20–24m, 25–32m, 27–32u±* **181** *4–8m* **183** *27–31m* **184** *3–8m/w* time only thus saved **185** *4–6m* **186** *4–8m* **187** *1–5m, 4–7m, 13–21m/w* crossing? **188** *13–17m/23–28m/12–32w* fruits & leaves do not go together **189** *1–3m, 16–20m* **190** *7–12m, 25–26m* **191** *18–22m/!!* **194** *12–16m* **195** *6–10m* **196** *1–5m* **197** *1–5m/2w*

curious *21–23m* **198** *29–32m* **203** *9–16m, 12–15m, 18–22m/?* **204** *17–22m* **206** *14–18m, 29–32m* **208** *30–32m* **209** *1–2m* **215** *12–17m* **218** *8–14m, 26w* not roses **221** *20–24m* **225** *7–12m* **230** *21–26m* **231** *28–29m* **233** *29–32m/30w* tulips **234** *16–20m, 24–27m* **237** *11–14m* **247** *7–12m* **248** *20–24m* **254** *16–20m* **256** *4–7m, 8–11m, 29–32m* **258** *21–25m* **259** *19–23m*

℘

322 *9–13m*

℘

373 *9–13m*

℘

400 *5–11m* **406** *21–30m* **410** *25–30m* **415** *wt* Belgium good for Pears *1–7m (Duhamel)* **430** *4–32m* **431** *15–20m, 21–30m* **432** *16–18m, 22–26m* **433** *1–3m* **434** *14–26m* **437** *4–20m* **439** *30–32m* **440** *1–5m* **441** *6–10m* **442** *10–13m* **444** *13–22m, 27–31m* **446** *25–30m* **450** *14–17m/11–21w* This makes me believe in other cases.– H. Watson no **452** *26–32m* **453** *4–8m* **457** *19–22m* **458** *9–29m* **472** *6–12m* **478** *4–10m (Klinkhardt)* **486** *4–8m, 12–15m*

℘

vol. 2, 10 *3–6m* **16** *18–20m, 22–23m* **24** *2–4m/!*

℘

81 *27–32m* **86** *17–23m* **108** *19–23m/wt/1–22w* some trees do a little – period of flowering too slow for selection; in animals, a non-constant is rejected **123** *8–17m/10u "concevable | effet"* **126** *2–4m (Cabanis)/w* doubt it **128** *15–20m* **131** *23–29m, wb* cases of some good ones springing up, only hypothetically doubted **132** *19–27m/19–20m* **144** *3–8m* **149** *29–32m* **158** *3–5m* **161** *2–5m* **170** *28–32m* **178** *8–12m* **181** *11–16m (Sageret)* **184** *14–18m* **197** *3–6m, 1–23m* **202** *15–20m/w* not seed **203** *22–28m* **205** *30–32m* **209** *3–8m* **225** *3–13m, 23–32m* **226** *1–13m/4–9m* **241** *18–24m/w* The experiments are related before **249** *1–6m, 9–11m* **250** *4–22m/wt/1–26w* important. not caused by season, for all trees in the same nursery not affected *24–27m, 30–32m* **251** *1–5m* **252** *28–32m* **253** *1–4m, 23–27m* **254** *11–16m* **255** *27–32m, wb* Can the wild be too vigorous to be crossed by domesticated ones; but I think he tryed the reverse **256** *16–20m* **258** *11–16m* **263** *11–20m* **264** *25–32m* **265** *2–6m* **271** *6–11m/7–9w* crossing? **286** *1–8m* **290** *27–32m* **291** *1–7m, 2–3Q✍, 6u "séquestration | vigne"* **293** *12–20m* **298** *1–6m/w* Grape **308** *10–18m/w* just contrary to Knight **312** *20–27m* **313** *11–15m, 21–27m* **314** *5–10m*

℘

385 *9–16m* **386** *11–23m* **388** *22–30m* **403** *14–22m, 30–32m* **404** *1–5m, 5–8m, 14–19m, 22–27m* **406** *1–10m, 18–22m* **413** *8–12m* **414** *10–15m, 20–24m, 30–32m* **415** *1–15m* **416** *8–22m/9u "prunier | pommier"* **418** *7–12m* **421** *4–10m, 29–32m* **422** *15–22m* **424** *7–16m* **428** *18–24m*

℘

484 *1–9m*

℘

MOORE, David and MORE, Alexander Goodman *Contributions towards a Cybele Hibernica* Dublin; Hodges, Smith & Co.; 1866 [Down]
cc, gd

NB p.xx, xxiii
xx *16–20m/16–17w* Water plants *17m/w* Doubts *18m, 20u "Atlantic"/19–22w* doubts whether not naturalised **xxiii** *10–14m*

℘

MOORE, Frederic *Descriptions of new Indian lepidopterous insects* Calcutta & London; Taylor & Francis; 1879 [Down] ℘

MOORE, George *The first man and his place in creation* London; Longmans, Green & Co.; 1866 [Down]
beh, h, pat, v

NB 252 Nods; 341 ◆ Blackness & Fever
252 *2–7m* **341** *20–29m, 36m*

MOORE, Thomas *The poetical works* London; Longman, Brown, Green & Longman; 1847 [Down]

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af, cc, ch, em, f, fg, gd, he, ig, mm, mn, no, oo, phy, rd, sl, sp, sx, t, ta, tm, v, wd

NB1 266; 271; 285; 295; 300; 303; 305; 309; 322; 324; 326; 328; 329; 342; 345; 352; 354; 370; 385
N.B. I have not attended to variations with normal abortive parts
NB2 V. Back First for N.B.; 19; 20; 25; 29– How then are flowers in fern-leaved Beech Irish yew &c &c; 30; 37; 42; 44; 50; 53; 54; 56; 58; 60; 62; 65; 66; 68; 69; 73; 77; 79; 85; 91; 113; 114; 116; 121; 122; 124; 126 to 130; 132 to 146; 154 to 159; 163; 166 to 192; 197; 213; 214; 216; 219; 221; 225; 229; 235; 236; 252; 254
SB1 ❐ℜ
30 varieties, i.e. slight modifications rarely congenital
42 Mountains destroying colour sometimes Q✍ to 58 a good deal about striped flowers

& fruit
61 effects of good soil on villosity, & low elevation Q✍
68 Atrophy of organ often causes villosity of Part
73 Fleshiness of leaves caused by proximity to sea Q
113 Monstrosity of axil almost always affects the parties appendiculaires Q
115 Monstrosities more common under cultivation than in state of nature.
116 Q Monstrosities are generally normal in some other species.
121,139 organs arrested & rudimentary at different ages of evolution & hence more or less rudimentary.
Q 124 organs often repeated are most variable in form ✍ Isidore G. St. Hilaire
126 in Maize a return to supposed primitive form.
128 comparison of rudiments of stamens to normal rudiments in other flowers
138,140,156,167 case of monstrosity analogous to other species– Q
✓✏ 173 good
156 Believes in Balancement; 158 Q
163 changes of form when organ becomes rudimentary
168 variation of "Piment annuel" see Vilmorin Catalogue
172 analogous variation in most distinct plants; crinkled leaves.
SB2 ❐ℜ
189 great tendency in irregular flower to become regular (or peloric) – this is return to ancestral structure? p191 hereditary – generally sterile. Why?– see further, for the peloric flowers retake their normal structure
212 Monstrosity analogous to other allied genus
221 in Malus apetala all stamens converted into pistils
225 Rudiments normal of parts.
248,266 on soldering of homologous parts Q
285 on trunk of tree with nuts & acorns in solid wood (✍& Birds nests – Loudon Journal.)
309 Deplacement very rare monstrosity, as in animals
323 342 Q Monstrosity analogous to another genus in Family
327 Q Linnaeus on plants wh. lose corolla in Arctic regions
352 Return in stamens to normal number, even when rudiment not present
353 Remarkable heredetary Capsella bursa pastoris
385 Description of the St-Valery apple

ix *21m* **19** *4–6m, 19–23m* **20** *7–12m* **25** *16–17m* **29** *1–3m, 6–9m* **30** *5–6m, 10–11m, 14m/w* V. note **31** *16–18m/!, 31–32m* **37** *29–30m* **42** *10–14m, 16–19*Q✍, *20–22m, 28–30m, 32m (Saint-Simon)* **44** *9–10m* **47** *5–7m/w* like Apples half sour & sweet *8–10m, 13–15m (Knight), 19–21m* **50** *16–17m, 22–24m* **53** *29–31m* **54** *27–29m* **56** *9–14m, 22–24m (Sénébier)* **57** *16–18m (De Candolle), 24–27m* **58** *1–4m* **60** *29–30m* **61** *7–8m* **62** *19–22m/20w* Ch 7 *26–27m* **63** *2–4m* **65** *3*Q✍, *6–8m* **66** *6–9m, 28–30m* **67** *11–12m, 18–21m (De Candolle)* **68** *11–14m, 27–29m* **69** *1–5m* **73** *23–28m/w* Q Good for Chapt. 7 **77** *3–4m, 9–10m* **79** *24–26m, 28–29m* **85** *6–11m, 14–16m, 19m/u "6|8", 21u "4|5", 23u "moitié", 25u "qu'à|station"* **91** *3–4m/4u "généralement|stériles", 5–7m, 6u "Ses dimensions"/8u "ses habituels", 13–16m/w* Do they seed *25–29m* **113** *22–23m/*Q **114** *7–9m, 28–29m* **115** *1–4m, 5–6m* **116** *1–2m, 3–5m/*Q **120** *14m* **121** *1m, 2–4m, 5–6m* **122** *9–18m/w* I suppose frequent **124** *at ⟨page no.⟩, 7–8m/*Q **125** *5–6m, 16–18m/w* naturally so, I suppose **126** *4u "involucre|calice"/4–9m/w* known to be true – good case *10–13m, 22–24m/w* now known *26–27m* **127** *wt* wild Quince tree *1u/wτ, 3m, 6–7m, 11m, 27–28m* **128** *1–2m, 5–7m, 17–18m, 20–23m/21–26w* actually compares with normal cases *28–30m/28u "rudiments"* **129** *3–6m* **130** *2–5m, 20–23m, 25–28m* **132** *13–15m, 16–19m* **136** *7–9m/5–12w* example with respect to the balancing of organs **137** *6–8m/7–26w* also occur normally V. note but in different families: Does this not bear on such cases, as similarity in Orchis & Asclepias? **138** *18–19u "Solanum Dulcamara", 20u "deux|étamines", 22u↔, 23–24u "quelquefois|extranormales", 29–33m/16–19*Q *29u "une|habituel", 32–33u "Solanum tridynamum"* **139** *6u "Anémones", 9u "les|Goëthe", 11u "Diplotaxis", 10–14w* are these same families? (No) *15u "Cleome"* **140** *23u "Seneçon", 28–29m/u "Barkhausia|Crepis"/w* I think same family *31–32m/w* worth reading **146** *9–10m/w* is this not analogue of Turnip **154** *10–13m* **155** *2w* Quote generally *11–13m* **156** *wt*◆ Q *1–2m, 9–13m, 12–13m (De Candolle, A.P.), 17–23m/17u*♠*/19m*✏*/22u*♠*/21–22w* same Family *25u "temps|pédoncules"/26u↔/w* Balancement *28–30*Q*/31–32m (De Candolle, A.P.), 24u " Muscari"/wb* I cannot make out in Loudon whether this is Feather Hyacinth **157** *3–5m/w* same Family *13–16m/14w* Balancement *22–28m/w* Q cart before horse *31u*♠*/32u "caractères|Carex"/31–33m* **158** *3–6m/w* Right horse before cart *10–12m/u "sexuels|habituel"/w* Balancement *24–27m/w* Garden fruits & seeds *30m/w* worth reading

159 *9–10m/w* Balancement **163** *1m, 19–20m* **164** *1–2m* **166** *6–12m/9u, 21–23m, 25m* **167** *19–21m, 27–28m* **168** *5a "Podolepis".w*● 7–8m, 13m, 26–28m, 32m **169** *1–2m, 16–18m* **172** *11–13m/w* Umbellifera Coniferae Compositae *14u "Chou", 14u "Laitue"/14–15m, 16m/w* Parsley? *28–30m* **173** *24–30m*✏ **174** *wt* variegation but only analogous *1–6m, 14–16m, 18–20m* **175** *8m, 8–9u "ou | temps", 23m* **182** *27–29m* **184** *9–12m, 19–21m/x*✎ **185** *17m* **186** *11m, 13–14m, 15–16m, 18–19w* 13 species of Linaria ! **187** *3–4w* Linaria *10w/13w/15w/17w* ♠ 7 genera **188** *12–14w* (10 genera) *17–19m, 24u "Rhinanthus"* **189** *3u "Chelone", 15–19m, 19m* **191** *6–9m*✎, *15–16m, 20–21m, 23–25m, 26–31w* see only about 6 stamen, too many **192** *2m/6–10*Q *11–13m, 20–22m/w* so I saw in Laburnum **193** *5–12m, 14–16m (De Candolle, A.P.)* **197** *3–5m/5u "habituelles", 7–8m* **207** *25–27m* **213** *1–10m/5u "Arbousier | Éricinées", 8–9u "Argophyllum", 24–26m/*Q **214** *25–27m* **216** *1–2m* **217** *6–9m, 19–21m* **218** *9m* **219** *1–2m, 3m, 30–31*→ **220** *24–27m* **221** *19–20m* **223** *11–14m* **225** *5–7m/6–7u "trouve | onglet", 14m, 27–30m* **235** *8–10m, 11–16m* **236** *15–17m (Richard)* **248** *1–2*Q *4–9m, 20–24w*✎ Leaves or their lobes **249** *27–28u "Gleditsia"/28m, wb*● **250** *2u "Dracontium"* **251** *16u*✎ *"Séphales", 25u*✎ *"Pétales"* **252** *1–2m, 25u*✎ *"Étamines"* **253** *15u*✎ *"Pistils"* **254** *6–7m/w* influence variation **258** *15m*✎ **263** *3w*✎ buds **266** *23–29m/*Q **267** *3–5m, 23–25m/m*✎ **271** *9–11m* **285** *19–21m* **295** *29–30m* **297** *3–6m, 9–11m* **300** *16–19m, 29–31m* **301** *7–10m* **303** *10–12m, 30m (Guillemin and Dumas)* **304** *16–17m* **309** *2–4m (Geoffroy St Hilaire)* **315** *1–2m, 28–30m* **319** *28–31m* **320** *7–10m* **322** *14–17m* **323** *5–6m, 15–17m/w* which is Leguminous *23–24m* **324** *8–10m, 11–12m, 13–18m* **325** *9–12m, 21–25m/21–23m, 31–33m/32u "2,500", 33u "658"* **326** *25–26m, 25u "foule | causes", 26–27m, 26u "plupart", 27u "normalement"* **327** *1m, 4m, 5–6m, 8–10m/11–13m/8–13w*✍ are there many arctic Plants, without corolla **328** *5u*♠, *5–6u "bois | disparition", 6–7m, 19–21m, 22–24m* **329** *6–8m, 11–13m, 21–24m, 29m* **330** *1–3m, 4–6m* **342** *20–28m/20–23m/*Q*/24–27m* **343** *1–2m, 14–19m, 23–25m, 27–28m* **344** *5–6m/5w* What is it *14–16m* **345** *8–9m, 21–22m* **352** *2–6w* So in Azalea *18–20m, 24–26m, 25u "d'éléments nombreux"/27–30m/29–31m/29–30u*↔*/6–32w*
Here I suppose not even a rudiment present, but tending to produce <u>perfect</u> organ, or rudiment **353** *9–12m, 24–27m, 33m* **354** *1–3m (A.P. De Candolle)* **370** *7–9m* **385** *26–33m* **386** *10–12m, 31–33m, 31u "Mém. | Linn.", 33u "Seringe | 117"* **394a** *39m, 41m*

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beh, h, or, sx, v

NB1 <u>Instinct</u>
◆ 300 Castoreum not sexual Used
p.44 ♣ variability
89; 93; 95; 100; 102; 116; 133; 140; 158; 165; 191; 222
248, 250 to end Best observers admit intellect
instinct 264 good
289 variability
NB2 ◆
Mind of Man– poor– 252; 256; 258; 259; 272
Blind Pelican fed
Our pity is an instinct; Blyth; crows – Fowl

44 *3–19m* **83** *17–33m/22–26m, wb* over **84** *7–11m* **89** *17u "and | bark"/17–19w* instinct first arose accidentally? **93** *1–3m* **95** *29–32m* **99** *13–18m* **100** *26–33m* **104** *20–23m/22m* **105** *18–20m/19u "than | structure"* **108** *18–20m* **116** *16–22m/1–22w* could a lodge have been originally found in centre of stream? **133** *12–15m* **140** *25–29m* **158** *16–24m* **165** *21–27m* **172** *28–30m* **191** *11–14m/11–12m* **222** *8–9m, 14u "much | members", 23–27m* **248** *12–28m* **250** *10–14m, 27–32m* **252** *6–11m, 17–21m* **256** *26–30m* **258** *1–5m, 6–8m (Hamilton), 12–16m/14–16m* **259** *3–7m, 18–21m* **262** *8–12m* **264** *3–9m* **265** *6–9m* **266** *9–11m/8–14w* No – Chicken picking up grain – Sphynx Moth *18–19m/w* Wasp-Ants **272** *23–31m* **273** *15–29m* **278** *17–23m* **289** *19–24m*

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geo, ti

NB 363 Hooker Eocene Temperate Plants
℘
363 *30–34m*

MORTON, Samuel George *Types of mankind; with contributions by L. Agassiz, W. Usher, H.S. Patterson* ed. J.C. Nott and G.R. Gliddon; Philadelphia, Lippincott & Grambo; London, Trübner & Co.; 1854 [CUL]
ad, af, br, cc, cr, cs, dg, ds, ex, fo, gd, geo, h, hy, in, mn, or, sl, sp, sy, t, ta, tm, v, wd

NB ✍ ◗titute of Mankind 1200B.C. Sir W J◗ 800B.C. Wilson & ●
✏ ◆ Prichard Last Edition
◆ ●
Jackinot, Considerations generales Voyage au Pole Sud Zoologie (Royal Soc–? must be studied.–
Rosellini Athenaeum Monumenti dell'Egitto &c
Champolion
Morton Crania Aegyptiaca
Lipsium Denkmalen (read)
Mr Birch○ seems to have written illustrated Book
p.459◆ 724 Important Book. G. St. Hilaire
p.675 Chronology
688 –Aegyptian Dynasties.–
691,2; 696 Chinese; 701,2 Assyrian; 712; 715 Hindoo
Sir James Brooke○ says positively Dyaks○ ✄ no greyhound, only degenerate Chines Dog. & Pig seems equally degenerate Chines
SB1 xlv; liv; lx to end of Agassiz; 56; 54 to 66 to 75; 81–85
90 Have I read Edwards description of Races of Man
94; 141; 156; 169; 175; 179; 181; 186; 194; 212; 237; 256; 272; 275; 280; 305; 309; 322; 338; 340 to 403; 413,14; 425; 436; 439; 440; 449

As mere naturalist, excepting from blending of races to certain extent, independently of crossing, I shd look at races of man as deserving to be called distinct species, yet I consider as descended from common stock, so come back at common belief; only difference is name whether to be called species or variations.
What effect wd idea of beauty have on races and selection. it wd tend to add to each peculiarity. V. our aristocracy.
The question of Origin of our domestic animals from 1 or more stocks, as only of interest, as showing amount of variation & hybridity

⟨*over*⟩ ◆ It will be quite necessary for me to state most strongly how impossible it is to guess the steps by which even vars., as of human race (or of Pigeons) have attained their characteristics.–
It is of course no ways impossible that some of the dogs of the Monuments may have descended.–
I am beginning to conclude that it is more difficult to account for small variations, as of man, when there is no adaptation than greater differences, when adaptation.
Consider cases of Rabbits, mere laws of growth
So geese & Ducks
Nothing is more odd than similarity of Fuegian & Brazilian. Why Puma shd range continent unvaried & Monkeys differ in every province.– It is great hiatus in knowledge. I may contrast Man with Monkeys, for on my theory, the Monkeys have varied.–

xlv *25–28m* **liv** *7–11m/8u "Monograph on hybridity"* **lx** *8–11m, 17–20m/18?, 24–27m* **lxvi** *31–38m/32–33?, 37–43m* **lxvii** *42–43m/43u "A. Wagner"* **lxix** *24–32m/w* How false for how distinct S. America & North temperate America. **lxx** *6–14m, 28–32m/w* what forced reasoning ! **lxxi** *12–14m/12–17w* Cape of Good Hope Plants of ! so distinct. **lxxii** *12–18m/w* Here single genus, instead of whole Fauna taken. **lxxiv** *7–11m/10–12m/1–17w* But it will come in, what is meant by primordial, except that not descended from other form. *10a "Characteristics"/11–13m/9–16w* nor does analogy cause doubt whether they may not have varied. *26–29m, 35u "as | the"/31–35w* this not known *32u "primordial | forms"/31–34w* primordial begs the question *wb* "organic forms now keeping distinct" wd be more correct – but in common acceptation, certainly origin comes into play: hence cowslip & primrose discarded. **lxxv** *11–13m* **lxxvi** *wb* Plants used at beginning, ignored at Cape of Good Hope, & New Zealand – look at Madagascar – Look at same race in United States & S. America oh fish pudor Agassiz!.– **54** *34–35m (Prichard)/34u "1847"* **56** *8–9m (Lepsius)/8w* read **57** *30–34m (Prichard), 46–48m* **58** *21–35m/26–32w* well argued *40–47m* **66** *8–13m (Pickering)* **68** *26–33m* **72** *16–19m* **74** *35–40m* **75** *4–7m* **76** *43m* **81** *17–18m, 20–23m/19–27w* These terms are objectionable because "allied" means also systematically allied. **85** *8–11m* **90** *3–10m* **94** *1–13m, 22–26m* **95** *16–21m, 26–30m, wb* depends on the individuals or race & not on law of proximity. **141** *21–25m, wb* can men portraits◆ rude sculptures be trusted **146** *"Memnon".m/wb* Knox Races of Mankind says p.204 that Bust of young Memnon is that of a Jew (see next Page) **148** *"Ramses II".m/wb* Dr Birch says this is young Memnon of Knox **154** *24u "Romenen", 29–34m* **156** *33–35m* **159** *34–41m* **160** *23u "Japhetic", 25–30m* **163** *6u "Chinese"/8u "Tartar"/12u "Mongolian"/6–8m/w* are Chinese & Tartars now alike **169** *39–41m, 43→* **170** *1–3m* **173** *11–13m/11–12u "variously explained", 19u "Israelitish | Hyksos", 19–23w* shows that the races not so easily recognized *27u "Semitic", 39u "Hyksos"* **174** *12u "northern | origin", 26–29m/26u "Champollion | Greeks"/29u "Hyksos-family"* **175** *16u "Semitic", 19–26m* **179** *9–16m, 23–32m* **181** *23–27m, 36–38m* **186** *32–37m* **190** *26–32m (Prichard)* **194** *37–44m* **212** *9–10m* **237** *23–27m* **256** *37–41m* **272** *13–16m* **274** *wt* To show how little we know how variations are produced mem. changes of colour in domestication; reduction of size & interbreeding – small & great forms rising in same country, as sheep & Bantams &c &c – why Yankees differ from English? *26-30w* mem. an old-world form, mem. nose *31–34w* similarity owing to character of first intruder *35–36w* a group *40–43m/37–43w* slight distances these are. **275** *1–9m/wt* like the Puma *43m* **276** *11u "infinitude of types", 13–18m, 36–40m* **277** *41–43m* **280** *34–42m/35u "without material"* **305** *22–26m, 35–37m/37u "peculiar | constitutions"* **319** *31–35m* **322** *20–28m* **327** *25u "Usher"/w* unknown to Lyell **338** *6m* **339** *43m (Cuvier)* **340** *32–34m (Buckland), 38–40m* **341** *2–3m, 9–10m/10w* ancient *26–28m/w* European Dog *35–38w* Eocene age? *41–42m* **342** *1–2m, 32–34m (Serres), 37–38m, 41–42m/z* **343** *1m, 6–8?!!/m (W. Mantell)* **347b** *43m (Schmerling)* **353** *41m* **357** *1–2m* **364** *wt* The age of Man very important, as most savage races have domestic animals (at least dogs), & hence is concerned with origins of Man. **368** *13–20m/w* Successive extinction **373** *18m/w* since contradicted *23w* do. *25m, 27–28m* **374** *17–22m* **375** *wt* Race-hybrids Species-hybrids *2–6m/4u "Charleston Medical Journal", 26–30w* implying, I think, separately created *38–39m, 40–41m, 42u "turnspit"/wb* (A Monster) *43–45m* **377** *1–4m, 26–28m, 32–33m, 34–35m* **378** *10–16m, 39–41m, 43–45m, 50–52m/w* Col. Ham. Smith **379** *13u "unprolific | se", 13u "without | coupled"/12–15m/w* ? no precision *17u "victoriously | Morton"/19u "Charleston | Journal"/Q✍, 27w* Buffon *30–31w* See Chartsworth Journal *37m/w* inter se *45–48m* **380** *19–21m/20u "Bolta | Layard", 28–44m/41–44m, 45–46w* p.724 good references *47–50w* not intended **382** *12–15m/13u "among themselves"/15u "wolf-dogs", 18–19m, 32–37m, 38–40m* **383** *4–7m/7u "continues | remarkable", 8–9m, 19w* i.e. C. Lupus of many authors *34–40m/36–40m/36–37w* Richardson *37–39m, 39–40m, 52–53m* **384** *1–3m, 8–9m, 10–12m, 21–29m, 42–45m, 46–49m, 47–49m* **385** *wt* Think of the geographical distribution difficulty *12u "Tchudi"/12–13w* most probably in Nat History *13–17m/13–14u "found | epoch"/14–15u "that | seldom", 23–25m, 45–48m* **386** *10w* quoted from Lyell *26?/u "in | forms"* **387** *fig.235.w* Pariah dog *16–18m, 43–50m* **388** *wt* Rosellini *fig.237.m, fig.240.m, 1–4m, 3a/u "3400", 16–18m/17a "dynasty"* 2400–2100 BC *21w* Lepsius *22w♦, 25u "a | hound", 28–30m/29u "IVth | dynasties"/30u "curled tail", fig.240.w* How alike Jackall & supposed Greyhound *41–42u "the | BC"* **389** *fig.241.w* Rosellini *7u "from | Roti", 9u "XIIth"/w* 2400–2100 *13u "gazelle", fig.242.w✍* modern *29–30m, 31–33m, 42–45m, 51u "at | species", 52–55m/53u "small | peculiarities"/w* Eyton **390** *2–5m, fig.243.w* What dog is this? so long in body. Lepsius Dankmalen Rosellini♦ ears not like *13u↔, 15–19m, 20u "Rossellini's", fig.244.w* Lepsius short body – what a tail *fig.245.w* Rosellini big ears *fig.247.w* ears not like hound, long body **391** *2–4!, 5u "common | of", 8u "433"/w* Hoskins Ethiopian *12u "434"/13–19m/12–16w* Bennett Tower menagerie has figured African Bloodhound (?) *29u "twenty | before", 35–37m* **392** *8–10m, 10–15m, fig.251.w* Layard & Vaux *38–39m* **393** *6–7m, 14–18m, 27–33m* **394** *3–7m/4w, 10u "pugs | &c"/10–12w* no sort of evidence *17–28m* **395** *1–10m/2–6w* i.e. variation due to crossing *5w* Pigeons *41–44m, 46–50m* **396** *10–17m* **397** *36m* **398** *37–40m* **400** *14–24m, 27–29m, 34–35m* **401** *3–5m/4u "but | hound", 10–11m, 21–23m, 24–25m, 32–36m, 41–44m* **402** *4–12m* **403** *3u "natural"/3–5m/w* Giant Horse *12–14m* **413** *4–10m/7u "no | camels"/8u "no | fowls"/4w* Gliddon *21u "may | BC", 24–26m, 27–30m, 44–47m, 48–53m* **414** *32–35m* **415** *1–3m (Crawfurd)* **424** *38–43m* **436** *28–36m* **439** *3–15m, 41–44m/43u "excessive"* **440** *1–4m, 3u "authentic documents", 4u "anomalous conformation", 13–21m/13–16m, 35–37m/37u "foetus"* **449** *24–28m* **669** *12–14m (Rosellini)* **675** *24m, 27m* **688** *1–4m/3u "pyramids | tombs"/4u "thirty-fifth"* **689** *8m, 10u "Pyramids | extant"* **691** *41–45m* **692** *20–25m/w* ∴ Romans probably did not receive domestic Birds **693** *35–37m* **701** *17–20m* **702** *14–18m* **714** *20m* **715** *11–13m, 37–39m* **717b** *35–39m* **724a** *51–52m (Ritter), 54–55m, 57m/59m/56–60w* Camels hybrid wolves Pallas on wolves **724b** *74–76m, wb* St. Hilaire

MOSELEY, Henry Nottidge *Notes by a naturalist on the "Challenger"* London; Macmillan & Co.; 1879 [CUL, I]
ad, beh, cc, ch, gd, no, oo, rd, sx, tm

NB 123 Distrib; 125; 133; 154 Rudiments; 168; 265; 457–84 Expression 492; 337; 292; 305; 360; 386; 591
Geogr Distribution; 17; 24; 123; 135; 164; 281; 368; 386; 433
SB Moseley
125 changes of Habit
169 Plants in Antarctic growing on mounds – wind
292 Nesting of Edible swallow
305 Gill-cavity partly lung & partly store for air
386 1 male nutmeg to 50 female trees
586 Competition
591 Light & colour of animals at grt depths

17 *25–26m* **24** *35–37m* **35** *4–6m* **45** *17–19m, 36–38m* **123** *7–10m* **125** *8u "under stones", 12u "totally new", 14–19m* **133** *14–25m, 29–33m* **135** *11–21m, 31–36m* **142** *17–21m* **154** *18–26m* **164** *4–11m* **168** *35–38m* **169** *1–7m* **265** *1–4m* **281** *1–8m* **284** *27–33m* **285** *8–17m* **292** *35–38m* **305** *27–37m* **337** *11–16m (Darwin)* **360** *12–16m* **368** *5–10m, 12–14m* **386** *8–12m, 23–25m, 27–38m* **387** *1–4m, 5–9m/6u "eject | hard", 12–16m* **421** *30–32m* **432** *23–26m/24u "70 | east"* **433** *15–22m, 32–33m, 35–37m* **457** *27–33m* **492** *29–35m* **538** *22–23m* **540** *13–14m* **581** *17–18m* **586** *17–34w* Competition with other forms far more important than conditions **587** *23–28m* **591** *17–35m (Wallich)*

MOSELEY, Henry Nottidge *Oregon: its resources, climate, people and productions* London; Edward Stanford; 1878 [Down, S]

MOSELEY, Henry Nottidge *On the structure and development of Peripatus capensis* (extract); 1874 [Down, I]

MOSSO, Angelo *Kreislauf des Blutes im menschlichen Gehirn* Leipzig; Veit; 1881 [Down, I] ℘

MOUBRAY, B. *A practical treatise on breeding poultry, pigeons and rabbits* 7th edn; London; 1834 [CUL]
beh, br, f, he, no, wd

NF1 Recommended by Mr Brent
NF2 p.147
NB1 Hens, Domestic Hints p70
NB2 p13; 17 to 24; 30; 54; 87; 106; 130; 133; 152; 154; 156; 165; 168; 176; 185; 203
SB ❏β
13 Game Chickens very pugnacious. Q Eggs very thin. Ch 6 Q✍
30 Some Hens much addicted to lay eggs in other nests
54 tapping on board with nail induced chicken to peck
107 colour of Ducks eggs going with plumage – Correlation (Memb. B. Ayles Duck)
133 Q✍ Hen Pheasant lays seldom more than 10 in confinement but 18 to 20 wild
170 London to Liege 4°34'AM 10°24'–5°50' said to be 45 miles per hour.
176 Some Cats Ratters & some Mousers Chapt 6 (Hereditary) & took to water & swimming
✍ Blyth on Felis cilidigitata○ aquatic kitten dabbling in water.–
185 Hare-Rabbit large eyes

13 *14–17m/*Q *18–19m, 25–26m/*Q **17** *23–25m* **18** *4–5m/4u "white tops", 12–13m, 23–25m* **19** *12–13u "exclusive | very", 16–17m* **20** *9–10m* **22** *11–12m* **24** *11–13m* **30** *19–23m* **54** *19–24m* **55** *16–21m* **70** *3–17m* **87** *3–12m (Buffon)* **106** *14–17m* **107** *2–8m* **130** *31–32m* **133** *28–31m* **152** *24–25m* **154** *17–22m* **155** *14–16m* **156** *28–32m* **162** *1–5m* **165** *1–3m* **168** *28–30m* **170** *28–32m* **171** *3–6m* **176** *4–6m, 20–21m* **185** *8–14m* **203** *2–6m*
℘

MÜLLER, Ferdinand von *Fragmenta phytographiae australiae* vol. 7; Melbourn; J. Ferres; 1869–71 [Down, I]

NB O/
℘

MÜLLER, Friedrich *Allgemeine Ethnographie* Wien; Alfred Hölder; 1873 [Down, I] ℘

MÜLLER, Friedrich *Reise der Österreichischen Fregatte Novara um die Erde in den Jahren 1857, 1858, 1859: anthropologischer Theil* 3. Abtheilung, "Ethnographie"; Wien; Kaiserlich-Königlichen Hof- und Staatsdruckerei; 1868 [CUL]
beh, cc, h, mg, t, tm, v

SB1 p.127– He discusses & disputes whether the civilization of W. coast of S. America is due to immigration from Asia– I wd remark if so, the aborigines must have already been somewhat advanced, for for while not nec with our inference, it is very unlikely that a few shipwrecked men from some less civilized nation cd have produced any permanent effect on savages.–

SB2 xi Remnants of Races
xii Beard no connection with Climate.–

xi *34–39m* **xiii** *11–15m/w* Beard correlation *19u "Australier stark"* **xiv** *22m* **127** *21–22m*
℘

MÜLLER, Fritz *Facts and arguments for Darwin* London; John Murray; 1869 [CULR]
br, ch, ds, em, ig, sp, sx, t, ta, tm, ud

NB 80 Orchestia shown
79 sexual differing good development goes on
40 zigzag above
21 & 26 two such forms
Species Theory
83; 94; 98 to 109 embryology no fixed plan
110,119 Metamorphosis of Insects acquired
139 like Plant
80 means of transition from changes going on in the sexually mature males Case like the larvae of Batrachians breeding

14 *30–33m* **19** *12w* p.9 *22–23m* **20** *1u "anterior antennae", 8u "Copepoda", 15–19m, 22–25m/23u "different", 28–30m* **21** *fig.m/c/w∉* **25** *fig.w* Fig I *11u "powerful chelae"* **26** *2u "by|terms", figs.w* Fig 2, 3 **27** *12–13u "females|species", figs.m, 24–26u "coxal|process"* **40** *20–26m (Milne-Edwards), 21u/a "inferior".w* posterior **47** *5–23m* **72** *23–26m/w* this is specific difference **76** *6–7u "structure|sexes"* **78** *1–7m/wt/1–3w* acquired only during adult age **79** *1–7m, 8–9m, 10–11m, 14–17m, 15–17m, 19–21m, 23–31m* **80** *1–13m, figs.m* **83** *19–25m* **94** *1–4m, figs.m, 6u "plus|the", 27–34m* **95** *9–18m* **98** *1–18m* **100** *29–30m* **101** *25–28m (Rudolf Wagner)* **104** *22–29m* **105** *1–6m* **106** *26–29m (Cuvier)* **107** *7–18m/16a "and the"* Spider **108** *1–6m* **109** *20–21a "us"* ! **110** *21–23m* **111** *4–12m, 7–13m, 19–25w* But the Embryo of the intermediate progenitor will reveal this stage **114** *14–18m* **116** *15–30m* **117** *23–30m* **118** *1–3m, 27–30m* **119** *1–6m, 8–40m (Gerstäcker)* **120** *40–42m/u "among|adult"* **121** *31–38m* **127** *11–15m* **131** *15–24m* **137** *11u/? "carina"* **139** *6–11m*

MÜLLER, Fritz *Für Darwin* Leipzig; Wilhelm Engelmann; 1864 [CUL, I]
sx, tm

SF ⟨*4 sheets, not CD*⟩ ❑β ∉
13 *figs. 3–6.w*✎ 2 forms of same male **17** *figs. 8 and 9.w*✎ 2 forms of same male **19** *3m, 14m* **71** *6–8m/6u "gleichem"*

MÜLLER, Hermann *Alpenblumen* Leipzig; Wilhelm Engelmann; 1881 [Down, I]
f, v

169 *20–21m* **189** *35–38m, 40–41m* **205** ✍ *26–29m/26u "Wohlgeruchs"/28u "Auszackung"* **206** *10–13m* **267** *5–16m* **268** *40–42m* **269** *41–43m* **279** *7–9m* **287** *1–3m, 6–8m* **288** *1–3m* **289** *1–4m* **290** *20–29m* **297** *25–29m, 35–41m* **305** *2–5m, 18–19m, 20–24m, 25–32m, 40–41m* **352** *10m* **477** *37–38m* **478** *1–2m, 37–38m* **479** *1–3m, 25–26m* **481** *fig.m* **483** *41–42m* **484** *29–30m* **486** *4–7m, 24m* **487** *5–7m, 35–38m* **488** *30–35m* **492** *37–40m* **493** *25–33m* **495** *2–4m, 7–18m* **496** *2–4m, 33–35m* **497** *10–21m/15–17m, 31–35m* **498** *7–10m, 21–22m, 36–39m* **500** *4–5m* **502** *12m* **503** *table.m* **505** *23–24m* **506** *8–10m, 35–40m, 41m* **507** *1–2m, 25–29m* **508** *fig.m* **509** *3–7m* **511** *17–20m/19–20u "da|darbieten"* **513** *1–3m, 11–13m* **514** *21–25m* **515** *1–4m, 28–31m, 42–43m* **521** *17–21m, 34–38m*✍ **528** *28–32m, 43–44m* **529** *1–2m, 9–10m* **530** *22–25m* **531** *19m, 33–35m* **533** *31–33m* **536** *32–34m* **539** *31–39m* **540** *31–32m* **541** *1–3m, 41–43m* **543** *31–34m* **546** *12–14m, 18–39m* **547** *1–5m* **548** *19–22m, 38–41m* **549** *38–42m* **551** *37–40m* **552** *23–26m, 42–44m* **554** *23–25m* **555** *16–24m, 28–36m* **558** *30–36m* **559** *9–16m* **560** *27–30m* **561** *24–29m* **562** *26–30m* **564** *18–23m* **565** *4–15m, 21–22m, 34–38m* **566** *19–21m* **567** *3–5m, 27–28m/27m, 35–36m, 39–40m*

MÜLLER, Hermann *Befruchtung der Blumen durch Insekten* Leipzig; Wilhelm Engelmann; 1873 [CUL, I]
ad, beh, cc, f, fg, ig, mhp, no, oo, or, phy, sl, sp, sx, t, ta, tm, v, wd

NB ⟨✏, *repeated* ✍⟩
extraordinary facts about the 2 forms of Rhinanthus & Malva– very important as showing new way of variation– Strange they do not blend– wd it not be worth while to cross and experimentise on with✍ them & publish separate paper–
✍ p.369. Scabiosa case like Thymus – female flowers smaller.
p.37 Orchids○ p73 ◊ all have descriptions separate
430 for Orchids
✍ 433 for Orchids
⟨✏, *overwritten* ✍⟩ p444 of Mullers Laws of Variation
title page *2u ⟨author⟩, 10u ⟨title⟩* **3** *14–18m* **4** *11–15m/[...]/13–15u "ohne|müsse"/5–23w* have been blamed, but is ✂ *18–21m, 23?/u "Sprengel|Erkenntnis", 41m* **7** *17m* **13** *6m/u "cleistogami"* **17** *7–38w* It seems that Axell has shown that many flowers can be self-fertilised **18** ✎ *22–25m/24u "Windblüthen"* **19** *26w*✎ Why not you give on page 22 *38m* **27** *20u "1868", 23m (Fritz Müller), 27m, 28m,*

28m **35** *11u "zu fressen"/w* Diptera *43–46m*✐ **37** *32–40m/36u "Rhingia | Rüssellänge"/33–36w* Flies not stupid **39** *9u "die Empisarten", 10u "Anbohren | befähigt"* **46** *14–22m* **47** *13–20m, 16–22m* **49** *15–23m* **58** *wt* p235/p333 Erythraea *4a/u "Laburnum | Carum"/w* 100 **61** *35–37m*✐*/39u*✐ *"sich | blühten"* **75** *34m/35m/ 31–34w* Hildebrand on late pollen *39–44m*✐*/ 35–37w*✐ self-fert orch *49–53m/w* self-sterile *53–54m, wb* Proc **76** *35–36w* 5 spec **81** *21–22m* **83** *24–29m, 33u*♠, *34u*♠, *43u*♠, *43u "Blüthen | mascula"/w* 2 *49u*♠*/w* 3, 4 **84** *4u "32", 42–57m/w* shows time right **85** *17–20m, 21–23w* 1 ● 6 Bombus 2 other ✁ **87** *27–31m, 39–41m*✐ **88** *13–21m* **90** *1–5m, 20–22ms* **92** *37–40m*✐ *(Sprengel)* **97** *wt* Ensuring cross-fertilisation *20m/u "proterandrische Dichogamie"* **99** *34–40m* **113** *31–33m* **115** *43–47m/45–46u "Diese | ihrer"* **122** *8–12m, 23–26m, 24w*●, *29–32m, 41u*♠, *42–43m, 42u "Ritterspornart"* **127** *15–27m (Fritz Müller), 30–31u "und | Blüthenstaub"* **131** *39–43m* **133** *1–4m, 4–7m* **143** *10–13m, 23–26m, 28u "Prosopisarten", 49–50m/49w* no ✁ **145** *3u*✐ *"Sprengel", 3–4u*✐ *"Hildebrand", 20–27m, 23u*✐♠, *26u*✐♠, *31u*✐ *"diese | bewirken", 32u*✐ *"kleine", 32u*✐♠, *32–34m (Delpino), 34u*✐ *"Selbstbestäubung | tricolor"* **146** *21–30m* **147** *13–23m*✐, *45–47m* **149** *37–39m*✐ **151** *10–11m/u*✐ *"werden | aufgelockt"* **153** *42–48m*✐*/ 46u*✐ *"von Dipteren und Hymenopteren"* **154** *28–30m* **165** *34–37m* **167** *35u "fünf Honigtröpfchen", 45u "gleichzeitig", 46u "doch | statt"* **168** *18–20m, 23–26m, 27m/u "durch | 70", 27–28m*✎, *29–32m* **169** *19–21m, 23–25m* **173** *27–47m, 35–36m, 38–39m (Kölreuter, Gaertner)* **174** *9–10m, 27–31m, 27–28u*✎ *"zu | hindurch", 35–37u*✎↔*/m, wb*✐ Several other non-dimorph species **175** *8m/u*✎ *"Insektenbesuch beschränkten", 34u*✎ *"41", fig.56.m/w* How like dimorph (must be origin of **176** *3–4u*✎ *"proterandrischer Dichogamie"* **185** *5–6u*↔ **188** *20–22m (Axell)* **193** *6–7x/6u "langer", fig.m, 10–21w* & different form & size. *12m, 13–15m, 13–26w* Spike when cultivated plants as we shall see variation *19m, 22–23m* **195** *1–2m* **224** *3–6m, 46–47m* **232** *45m/u*✐ *"monadelphisch"* **235** *15–17m* **240** *24u "honiglos", 24–26m, 32–33m/33u "Honigbiene"* **241** *wt* excellent observations compare mine *9u "welche | oben", 15–17m/16–17u "aller | zwängen", 30u "die | Rücken", 31u "der plattenförmige", 35–41m/?* **242** *22–27w* I cannot but think ● adaptation *33–35m/37–47m/37u*♦*/30–45w* Saft-maal & no Honey yet he thinks Bees *42–46m, wb*♦ a juicy swelling near centre of Standard **243** *8u "luteus"* **249** *19u "Honig | Insekt", 15–26w* Beautiful adaptation *28w* must be strong *30–32w* Difficult flowers for endemic insect *36–39m/w* Thinks noti✁ insects wd be stronger so fertilise better *48m/u "Viertelstunde", wb* very few Bees visit them **250** *3–9m, 38–41m (W. Ogle)* **253** *42–46m* **258** *2–7m/4u "coccinus", 8–37w* distinct species conclude must be crossed – this the one Phaseolus which flowers at the same time distinct species *17–23m, 23u*✍ *"vulgaris"/w*✍ wrong *46–49m* **264** *3–6m, 7–17m/14–16m* **265** *9u "einen Theil", 28–32m* **267** *29–34m/31u "ausgeprägte | Blüthen"* **277** *9–10m/10u "Blumenkrone", 12u*✎ *"nigrum", 30u*✎ *"Blüthen | Honigtröpfchen", 32–33u*✎ *"orange | und", 34u*✎↔, *36u*✎ *"überwiegend wahrscheinlich", 37u*✎ *"Insektenbesuche | möglich", 46–49m, 47u*✎ *"Saftmaal"* **278** *12–14w*✎ various insects *35u*✎ *"Thapsus"* **279** *40–41m*✎, *42–46m/m*✎ **282** *29–33m/30u "Wespen"* **284** *1–2m, fig.100.w* It is a dichogam) ✁ (Ogle & Spengel) *23–30m/17–30w* Think self fertilisation of seed *32–34m/33u "Bot. Z. 1865", zb* **285** *6–9m/w*● **287** *10–12m, 39–42m* **289** *wt* The more conspicuous a flower is the more likely to be fertilised by foreign pollen & to be sterile if not visited *20–37m/28w* (a) **292** *41–46m* **295** *8–11m, 42–43*→ **296** *22–29m* **303** *46–48m* **306** *22–28m, 31–32m/31u "Bezug | Ogle"* **311** *21–26m* **318** *fig.116.w* Polygonum dioicius *18–25m/23–24u "weiblicher | seltener"* **319** *20–22m/ 21u "Die kleinblumigen", 33–36m, 50u*↔, *wb* greater fertility is real cause **325** *20–22m, 28–29m* **326** *10–21m* **328** *5–9m/7u "proterandrischer", 8u "kleinblumiger | Stöcke", 6–7w* forms *14u*↔ **334** *1–3m/2u "13"/w* p113 **341** *20u "Bot. | 67"/w*✐ many cases given **342** *39–41m/28–42w*♦ fecundation wind & insects *wb* Begins by saying that D. describes 3 forms which note○ in○ passing○ ✁ owing to ● plants It ✁ **343** *2u "sammelnde | Pollen"/2–3w* on pollen from *4–6m, 43u "ausgeprägten proterogynischen"* **345** *1–3m, 5–9w* 2 Gradations between Arumarten & Erbsenarten **346** *37–44m/40u "homomorphische | proterandrische", 38–39w* non-dimorphic *42u "striata", 43u "Ricea | longifolia"* **347** *21–25m/ 23u "Kelche | die"/21w* 4 Hon *39w* cases *40–44m* **348** *5–11m/7–8w* 2 forms **349** ✐ *18–19u*↔, *28–30m/28–29u "Narbe | Staubgefässe"/ 30u "honiglosen"* **350** *7m/u*✐ *"Den | der", fig.130.w* between two & three as long *14u "0,011 | mm", 30–34m, 32–35m* **351** *1–3m, 6–18m/fig.m/6–8w* chiefly Diptera *10u "103", fig.c*

MÜLLER, Hermann *Die Wechselbeziehungen zwischen Blumen und den ihre Kreuzung* *vermittelnden Insekten* Breslau; Trewendt; 1879 [Linnean Society of London]

1 *wt*✍ From the Encyklopaedie der Naturwissenschaften Linnean Soc. presented by C. Darwin

MÜLLER, Johannes *Elements of physiology* trans. W. Baly, 2 vols & supplement; London; Taylor & Walton; 1838–42 [CUL]
ad, af, beh, br, cc, ch, che, cr, cs, dic, em, fg, geo, h, he, hl, hy, ig, in, ir, mhp, mn, oo, pat, phy, rd, sl, sp, sx, t, ta, tm, ud, v, wd, y

vol. 1 NB1 Owen says he can perceive not much difference between reflex action & effects of habits – (he conceives an habitual action takes place through special cord)
404 On division of Planariae
It seems to me most difficult to separate a really habitual (if such there be) & hereditary habit– from real mental willed actions, which the consciousness does not perceive from want of attention, in same manner as it does not perceive all coinstantaneous impressions on the senses –
✍ Associations may become hereditary, which wd account for the alliance of instincts with times, places – V. Hartley on association??
NB2
✍ How then can Geologists say, that animals were first created!!! a capital argument showing that we must not generalize from absence of organic remains ✏ see p.46
9; 10✍; 16; 19; 20✍; 23; 26; 28; 30; 39; 41; 43; 47; 48; 54; 56; 72; 76; 89; 90; 144; 158; 165; 193; 194; 198; 203; 254; 225; 290; 298; 302; 320; 350; 352; 354; 364; 373; 394; 395; 399; 401; 402; 407; 431; 448; 460; 499; 500; 568; 570; 572; 624; 280; 686; 698; 713; 719; 720; 730; 735; 739 & following pages for association; 748; 762; 778; 786; 791; 793; 794; 818; 820; 822; 824; 836; 846
Expression; 350–354; 730; 740; 748; 762; 778; 818
p407 Nails Reproduced
721 Theory of reflex actions
SB ❑β
33 The more developed the parts, the more dependent on each other
54 All organs require occasional use to keep perfect
76 Young Dogs as long as blind generate less heat, born at earlier period
165 Branchial arches in higher animals – p302, 320
290 on same part attracting same substances, as in Tumours (Pangenesis)
395 Peculiar teeth in ornithorhynchus, Ant-eater & Whale
399 On similarity of embryos of higher animals
403 On monstrosities in relation to division of genus – Double monsters Pang
499 In sucking objects to Cuviers idea of Dream for instinct NQ
686 On the insulation of the will to certain muscles in playing piano NQ
713 Reflex action compared by me with Habit.– 716 Reflex adaptive – 721 NQ
791 On atrophy of nerve of eye from lesions
468 Urea in blood & separated by glands

1 *36u "Sodium"* **4** *28–34m* **5** *6–14m/?* **9** *40–43m, wb* As if this whole function of life was first used in counteracting ordinary chemical laws– **10** ✍ *3–6m/!/4u "of|organic", 12–17m/13–15w* remarkable **16** ✍ *wt* How is this to my theory (& parasitical insects) *3–8m, 6–8m, 10–16m/w* like diseases proof of relation of man to other animals *24–26w* great change *26–27m* **17** *4–13m, 24m* **18** *36–42m/w* poor **19** *wt/1–41w* NB in the growth & ground of reformation of those simple animals in which any part out of will make new individuals the ordinary growth must be nearly same as true reproduction. & the theory may probably be extended to all organisms *1–10m/5w* poor *11w*✍ Yet a snail will reproduce its head!– *21–26w*✍ There must be some wider difference between ovum & bud.– *wb* There must be in the bisected parts organs sufficient to keep them alive & then any part may be reproduced.– **20** ✍ *38a "adaptation"/c "end"/w/* (as the effect of) ♣ circumstances **23** *12–15m/w* well seen in Zoophyte buds *34–38m, 40–44m* **24** ✍ *wt* now in a bud we must suppose there is one old particle of old organized structure.– a filament of old nerve *1–22m/7–8w* very good *38–42m/41u "anencephalous monsters"* **25** ✍ *3–5m, 6–8m/7u "by|dream"/9w* bad comparison?? *wb*✏ The inherited structure of brain must cause instincts: this structure might as well be bred. as any other adapted structure.– **26** *9–13m* **27** *38m* **28** *32–36m, wb* Combustion, I shoud think, was strongest analogy to live.– instead of heat being produced by the action. life – ♣ **30** ✍ *27–32m/30x/u "those|life", wb* X The vital principle produces the organs.– as the latter vary, so must the vital Principle. **31** *5u "indispensable"/5–6w* deep water sea-weeds! **33** *26–28m, 30–32m/?, 35–40m/w* I suspect false **34** *10u/? "transferred"* **39** *23–25m/23u "organic|also"* **41** *20–22m, 32–*

in (Note p.1661) German Translat. of Prichard
1661 Rudolphi Beitrage zur Anthropologie, treats of Species & Hybrids –
p.1671 List of good Books on Races of Man
–
List of good Books
♦ 1144 frowning
NB2 870; 928; 931; 934 Book on Expression; 936 to 950; 965; 1038; 1071; 1086; 1090; 1110 to 1117 to 1125; 1144 & 1150 Expression; 1148; 1169; 1229 Appendix p8; 1233; 1236; 1245; 1262; 1311 Expression; 1315; 1318 Instinct; 1328 do; 1335; 1339; 1344; 1347 to 1364; 1384; 1399; 1400; 1405; 1407; 1421 to end
Best abstract against metamorphosis which I have seen
♦ 1335; 1339; 1347
<u>Expression</u> 933,34; 1311 See Passions, Index; 1328; 1351 animals & man's mind compared; 1399; 1144 frowning short sighted people close eyelid & frown
SB ❑β
928 Consensual movements – at birth in eyes
935 instinctive walking (Heredetary easy flow of nervous force to certain muscles) Q 939, 943 Q
946 Definition of instinct. 947 – 949 – 950 on importance of Coordination. Q
Müller Phys 2d vol
965 Rudiments of toe in Horse & Pig do not touch ground
1344 <u>Instinct</u> Q – 1347 innate ideas – 1361
1405 Argument that monsters not due to imagination of Mother. (good)
1407 on temperaments of the old writers shows rubbish.–
1425 A Polype is a multiple of all that is necessary for development of individual (Pangenesis)
1437 A good sentence in relation to reproduction in connexion with superfluity for own Life ✍ in relation to Doubleday
1453 Tape-worms either bend & fertilize themselves or <u>two</u> unite – shows how important crossing must be as pollen of later dichogamous flower wasted & so with Lymnaei
1454 <u>Tendra</u> is it Bryozoon? sexes distinct
1458 Rudolphi has enlarged on sexual difference in his Beitrage Pang
1478 Imperfect Spermatozoa of Hybrids
1569 Membrane of egg agrees with membrane of uterus (Mem Fish coming to have Placenta
1592 On how far true that all embryos resemble each other.
1596 on embryo Torpedo increasing in weight in womb (a sort of Placenta ♣ 1597 (striking case of Passage)
1599 great difference in 2 species of Mustelus ✍ in placentation
1610 Relation of Vertebrae in Fish to embryos of higher animals
1622 Sharks have gills during early part alone of embryonic life
1661 Definition of Species
1662 On the two causes of Variation: innate & external
1663 characters fixed by long intermarrying
⟨*over*⟩ Passions

870 *26–43m* **928** *wt* N.B The summing up in this chapter good *3–15m, 16–19m, 41–42m/42u "be | habit"* **929** *4?/u "of birth"/w* instinct **931** *31–38m* **932** *8–17m/12–13u "any action"* **933** *wt* what makes a passion? *6–15m, 25–29m* **934** *wt●, 2–8m, 2–3m, 4–5m, 5–8"...", 41–42m (Huschke)* **935** *24–39m, wb* this bears on instinctive walking The nervous fluid flows into habitual channel **936** *23–26m, 33–37m* **937** *3–9m/6–7u "There | mind"/8–9u↔, 34–36m* **938** *14–16m, 15–19m/15–16u "the production", 16–20m, 17–19m, 23–24m, 29–31m* **939** *25–32m/28–29"..."* **946** *15–22m/"...", 36–38m* **947** *17–18m, 23–24m/u "the form"/23"..., 24–25u "unison | action"/25–28w* yet upon some education **948** *4–6m, 23–27m, 25–27m* **949** *20–22u↔, 20–22m, 23w* (a) *31–32m, 35u "decapitated", 35u "were spasmodic", wb* These are hereditary in Horses paces.– **950** *18–21m/18u "the | movements"* **965** *43–44m* **1046** *6–7m* **1071** *9–11m* **1086** *3–35m* **1088** *wt* Q to p.1162 **1089** *34–36m/36u "convex | crustacea"* **1090** *2–4m/3u "three modes" 23–28m, 25–27m, 29–31m* **1091** *19–21m* **1092** *1–2u "mosaic | instrument", 2u "concentrating | organ"* **1099** *1–3m* **1110** *6–7m, 28–30m, 38–42m* **1111** *7u "pupil | opening", 10m, 21–22m, 23–25m, 32–33m, 34m, 36m, 38–40m/38u "perception"* **1112** *4m* **1113** *4–5m, 9m/u "the cornea", 9u "in general", 15m, 21z, 23m, 27–28m, 33m* **1114** *6–8m (Milne-Edwards), 8u "Callianassa", 9u♠, 10–11u↔, 13–14u "the | cones", 17u♠, 23m, 24m, 28m, 33u♠, 36m, 39–41m/40u "namely | humour"* **1115** *1–2m, 7–9m/8u "man | generally", 19–20m, 22–24m, 25m, 28–29u "larvae | eyes", 36–37m* **1116** *3–4x, 7x/u "the | oblong", 9x, 37–39m/38u "more | body"* **1117** *11–12*Q *12–14m, 24–26m, 37–38m, 42–44m/44u "rudimentary state"* **1118** *13–15m, 28–30m/w* Have they lens for images **1119** *29m, 36m/u"characteristic of"* **1120** *5–6m* **1123** *24*Q *26–27m, 28–30m* **1124** *11–13m* **1126** *6m/u*

41m, 33m, wb Plants going to sleep without the stimulus of darkness strongly analogous to a voluntary action from a diffused nervous system. **43** *8–10m* **46** *25–33m, 34–42m* **47** *wt* Look at differences of variation propagated *2–5m/??, 9–27m* **48** *34–39m* **51** *20–23m* **54** *wt* in savages no cause apparent. [an ourang more ear? *5–15m* **56** *4–22m, 11–12w* curious **65** *25–27*Q *31m/u "torpedo", 38–39u↔, 40u "of | distributed", 41u "gymnotus and", 42m* **66** *6u "hundred | nerves", 9–10u "branches | superficially", 11u "without", 18u "nervus vagus", 20u "intercostal nerves"* **72** *13–43m* **73** *wt* Vitality is to ternary compounds, what electricity is to binary – *3–9m/!* **76** *31–37m* **89** *26–27m* **90** *1–3m/?, 23–28m/25–26u "torpor | time", 34z* **92** *30–35m* **107** *20–22m* **141** *21–25m* **144** *37–43m* **145** *8–13m* **158** *wt* it shows, I think, that ♣ same external form may be arrived at from two very different courses of generation *1–6w* it is an extreme case of analogy **165** *33–38m, wb* Hence prototype aquatic **192** *34–38m* **193** *12–16m* **198** *14–30m, wb* therefore habit of general movement of body would act on the heart.– **203** *18–21m* **225** *20–25m, 33–37m/35u "such | gallopavo"* **290** *26–30m/1–39w* But it does not follow that any cancerous particles are in the blood to be attracted. *28–37w* Transmission of varieties is answer enough. *38–44m/w* Rose-gall &c &c *wb* It is less wondrous that each new structure should reproduce itself if cancer does **295** *17u "tembrio"/w* tenebrio? **298** *3–6m/w* impregnated? **302** *23–30m (Rathke), 42–48m* **303** *22m* **320** *1–21w* Hence greater complexity of structure in early than in later stages. *13–23m (Geoffroy)* **350** *12–15m, 20–25m/w* what has pouting to do with respiration **351** *9–25m, 20–23w* crying imagination disgust *27–38m* **352** *1–4m, 11–33m/21–25w* urine from fear! **353** *26–27u "oblongata | nasal"/25–30m/w* established by habit *32–35m/w* analogous to tickling *37–39w* not alae of nostril? **354** *35–44w/wb* in playing a tune are the fingers connected with brain? or cerebellum *wb* why more difficult than any instinctive movement. **364** *22–23u "Nutrition | reproduction", 23–24m, 26–35m* **365** *29–30m, 30–34m* **373** *34–36m, 42–43m* **374** *1–15m* **395** *31–38m* **399** *1–10m/8u "but | while", 11–24m, 28–34m* **400** *40–42m* **401** *1–13m, 27–38m* **402** *1–30m* **403** *6–11m, 14–43m* **404** *4–11m (Dugès)* **407** *31–33m* **410** *28–30m/28u "it | transparent", 32–33u "affinity | surface"* **412** *37–39m* **416** *3–5m* **431** *25–30m/!* **447** *32–41m* **448** *30–37m* **460** *10–17m, 34–39m/39u "and | ornithorhynchus"* **468** *4–7m* **469** *13–33m* **473** *15–18m* **486** *27w¢* **487** *7–12m/?* **489** *3u/w¢* **499** *30–42m (Cuvier)* **500** *1–2m* **513** *32–33m* **514** *wt¢¢, 4–6m/5u "1.14 to", 27w* 484 **515** *34–35m* **568** *8–12m* **570** *36–41m* **572** *34–35m* **624** *1–5m/w*♦ would a blind man have sensation of light *8–10w* nerve aborted **680** *23–27m* **686** *22–24m* **698** *1–6m, 23–33m, 38–40m* **699** *25–27u "radiation | cord", 27–33m, 34–37m* **713** *30–36m/w* Infant winking see how old Willy was *33–36m*✏*, wb* Pretend to poke a man in the stomach, he will ward off. quite involuntary. Mr Wickham. Surely this must be custom **714** *32–41m* **715** *wt* Bell wrong *1–3m, 4–10m/6–11w* 2 sets of nerves for same end *13–15m* **716** *4–9m/5–18w* but why does it not excite ● instead of this misadapted movement **717** *wt* the eye would not work *5x, 18–24m/19x, wb* x it has been said that respiration, also, subject to the will – Habitual movements show that any may become reflective **718** *14–23m* **719** *37–42m/38–40u "there | action", wb* the connection here is hypothetical why not custom? **720** *1–2m, 12–24m, 14m/u "some | communication"/14–16w* surely custom *wb* I think Dr. Holland has some remarks on the connection of instinctive♦ reflex & habitual.– **721** *wt* XX May not a movement be said to be instinctive, when it is become reflex, without connection with true sensation, at least accompanied by conscience *11–20m/14XX* **724** *26–34m* **727** *10u "warming agent"/w* heat not light **730** *26–32m/23–29w*♦ Hence there is some such conclusion *30–37m, wb* This makes my notion about effects of passion &c very hypothetical No **735** *35–41m* **739** *19–34m* **740** *10–15m, 23–25m* **747** *39–43m* **748** *1–39m* **762** *28–30m, 39–44m/42u "tickling"* **763** *5u "reflection | brain"* **778** *38–41m, 39w* Cockatoos *wb* expression of species of genus same? **786** *19–23m* **791** *30–37m* **793** *23–36m* **794** *9–30m* **818** *19–44m* **819** **1–14m, 29–37m** **820** *15–24m* **822** *34–42m/34–36w/wb* I suspect all this is not so certain from the obscurity of sensitive plants. **823** *11–12x/u "it | matter"/wt* ? when habit becomes heredetary?? *9–17m/11–12xx, 17–18m/?!, 20u "dreams"/20–21w* memories ∴ ? dreams *24–42m, wb* curious coincidence of thought with my notion of hinge of shell &c &c &c **824** *5–44m* **825** *9–41m* **836** *23–26m, 23–31m, 31–41m* **837** *3–14m* **846** *31–39m/w* in reference to tumblers *36–40m* **Catalogue** *1 6–7m (M. Allen)* **2** *wb¢¢*

vol. 2 NB1 None hardly worth buying see Coll of Surgeons
p.1458 Reference to book on secondary male characters –
p.1478 Wagner Physiologie on Hybrids – &

MÜLLER, J., PHYSIOLOGY

"cornea | body" **1133** *1–3m* **1144** *13–15m/w* opposed to frowning theory **1145** *24–26m* **1148** *38u↔, 39–40m* **1149** *25–26m/u "voluntary | iris"* **1150** *6–9m* **1159** *13–14m, 19m, 32m* **1169** *3–12m, wb* The case of chickens shows how inappropriate the expression of dream is to this instinct – it is a habit. **1129** *31–33m* **1230** *1–4m, 30–32m* **1233** *24–29m* **1236** *15–16m* **1245** *22–27m* **1252** *34–43m* **1262** *19–23m* **1311** *10–11m/11u✏ "the eyelids"/6–11w* I shd say Habit, no in infant **1315** *8m/u "rudimentary | bone", 28–30m, 28–29m/29u "human | rudimentary"/w* I believe in Negro more developed *32–33w* Bentham law **1318** *17–20m* **1328** *19u "may | unperceived"/16–26w* Has remarked this with all senses, bears on habitual actions not being perceived **1335** *18–22m/18u "germ | parent"/19–20u "merely | plant"/?/21u "only | organised"* **1339** *23–26m* **1344** *26–30m, 30–35m, 42–43m* **1345** *5–7m/5–6u "The | consciousness"* **1347** *21–27m* **1348** *1–5m, 8–9???/8–12w* savage has power *11–13m, 32–33m/33u "distinct power"* **1351** *21–33m/21u "human | able", 30–31u "and | speech"/28–33w* V. Ld Brougham & Althorp *42–44m/44u "are | notion"* **1352** *5–9m/wt* if there is 'abstraction' on smallest scale, it may graduate into the highest – *7–9m/8u "image | constant", 30–40w* this does not apply to animals doing things for first time **1353** *2–6m, 18–19u "but | reaction"* **1361** *25x, wb* x In the case of the Dray horse, there is, he wd say, no intermediate step, by generalising or abstracting that function retards movement &c &c – but simple association – **1362** *22m/u "special | memory"* **1364** *28–30m/30u "but | relation", 31–33m, 40–43m/40–41u↔* **1399** *20u "ennobling | form", 23u↔* **1400** *26–36m* **1405** *15–19m, 27–30m* **1407** *13–16m, 32–35m, 42–44m/42u "temperaments"* **1421** *19u±/17–20w* I remember Owen doubted this. **1424** *19–26m* **1425** *5–6u↔/3–9m/w* good expression **1426** *18–21m, 12u♦, 20u "a force", 25–26u "formative power", 32m/u "formative | latent", 36–37m/37u "then | manifested", 40–41m/40u "formative | cytoblastema"* **1427** *34–37m* **1428** *1–5m, 26–27u "But | may", 27–31u±/29w* (a) *wb* (a) differs in duration of life = non-metamorphosis or less variation.= **1435** *10–15m, wb* I have to treat simply of variation by gemmiparous & sexual generation **1437** *11–15m, 21u "force", 23–26m/23u "differs | fissiparous", 29–30m, 36–37m* **1438** *7–13m, 33–35m* **1439** *13–16m/15u "gemmation | division"* **1440** *30–34m* **1444** *36–38m* **1445** *1–9m, 7–9m, 10–17m, 10–12m, 18–19m, 30–32?, 33–34m, 37–43m* **1447** *7–9m* **1448** *19–20m, 19–21m* **1449** *1–3m, 33–40m* **1451** *21–29m* **1452** *22–32m, 23–24u "notion | inadmissible", 30–31u "some | alone"* **1453** *5–7m/u "each | independently", 21–22m/21–24w* like dichogamous flowers *30–31m/31u "Once | tapeworm", 38–39m* **1454** *4–6m, 12–13m, 25u "includes | sexes", 26–29m* **1455** *11–14m, 18–35m* **1456** *28–29m, 40–42m (R. Wagner)* **1457** *27–32m, 37–39m* **1458** *12–14m/12u♠, 41–43m (Rudolphi), 44w* Poor Book **1459** *4–6m, 31u "but | internally"* **1461** *31–33m/33u "but | atrophied"* **1462** *42–43m* **1463** *1–2m* **1464** *9–10m/9u "in | embryo"* **1478** *wt* z) not more peculiar ♣ to hybrids than to Mongrels *16m/w* z)? *21–25m, 27–29m, 30–32m, 34–36m (R. Wagner), 34–36w* analogue to Digitalis *43m/wb* Coll. of Surgeons **1479** *1–10m/4–7w* are these dioecious? *35–36m (Meyen)* **1480** *22–24m* **1481** *30–34m (Geoffroy, Cuvier)* **1482** *37–40m* **1502** *25–26m, wb* the conditions which allow free propagation of leaf buds will yet prevent flower buds **1504** *5–14m, 18–20m/19u "down | stock"* **1506** *15–18m* **1516** *29–33m (Rathke, Reichert)* **1520** *16–19m* **1531** *16–17m/16–17u "fishes | type", 38–39m* **1553** *18–19m/u "the | arches"* **1555** *zb* **1566** *20–22m (Prévost and Dumas)* **1569** *2–4m, 17–19m* **1570** *34–35m* **1586** *42–43m/43u "3 | slits"* **1589** *16–18m, 17–18m* **1592** *2–6m, 10–12/11u↔, 13–15m, 19–21m, 22–24m/23u "unaptly | branchial", 25m, 28–31m, 34–37m, 38–41m* **1593** *20m/u "are reduced"* **1596** *7–11m, 34–38m* **1597** *2–3u "human | sharks", 3–4m, 15m/u "Mammalia | Man"/w* always contrasts them **1599** *6–10m/7–8u "genus | foetus"* **1610** *25–27m, 37–38m* **1613** *42–43m, 44u "which | abortive"* **1614** *5–11m* **1615** *11–14m, 32–39m* **1616** *wb* All this section had perhaps be better reread **1619** *34–36m* **1620** *1–3m* **1621** *1–3m, 3–5m/5u "early | embryo"* **1622** *33–35m* **1624** *11–17m (von Baer)* **1629** *32–36m* **1630** *20–23m, wb* ones wonder is lessened, ♣ at selection making an eye, when one sees how eyes are really formed **1632** *39–41m* **1633** *20–22m (Huschke), 34–41m* **1639** *23m, 32–38m* **1640** *9–11m, 13–14m* **1650** *28–40m* **1661** *14–18m/17u "certain invariable", 19–25m /!, 27–29m/29u "another genus", 30u "natural repugnance", 36–38m, 39–42m (Rudolphi, Prichard)* **1662** *6–9m/8u "varieties | faculties", 12–14m, 16?/u "races"/17w* individuals *20u↔, 26–28m/26u "is | species", 31–34m, 39–42m* **1663** *2–8m, 19–29m, 27–30m, 31–35m, 37–40m, 44u "also | education"* **1664** *1–3m, 9–12m, 14–21m 1665 1–20m, 37–42m* **1666** *12–13u "caused propagation", 35–44m (Vrolik)* **1667** *4–7m, 9u "ossa | one", 18–20m, 29–30m, 33–35m* **1669** *15–18m, 42–44m* **1671** *32m (Vrolik), 34m (R. Wagner), 38m/u "R. Wagner | 1840"* **1675.a**

66m **1675.b** *2m* **1688.a** *56m, 57m* **1701.a** *22–36m* **appendix, 1** *wt* O/ **8** *19–27m (Retzius)/ 21w* gradation *28–31m* **10** *7–9m*♦

Supplement *Recent advances in the physiology of motion* . . . [ed. Baly and Kirkes]; London; Taylor & Walton; 1848
rd, sx

NB 111 Rud. uterus in Males Q
23 ⇑*16x/u "crystalline"* **26** *12–15m* **60** ⇑*20–17m/w* Now there has. Newport **111** ⇑*12–6m/* Q

MÜLLER, Johannes *Über die Gattungen der Seeigellarven* Berlin; K. Akademie der Wissenschaft [Down, I]

MUIR, John (?) *Supernatural religion* 2nd edn, 2 vols.; London; Longman, Green & Co,; 1874 [Down, I] ℘

MURCHISON, Roderick Impey *The Silurian system* 2 parts in 3 vols.; London; John Murray; 1839 [CUL]
ci, fo, gd, geo, gr, is, mi, se, sp, sx, t, ti, tm, ve

vol. 1 NB X means Species Theory
18; 104 X Curculios & Neuropterous insects in L. Coal.; 109; 111
116 In reading an account of the Carboniferous formations – the variety of beds on which the whole rests & the thinning out of certain portions – the footsteps in New Red &c &c show how many partial elevations like East Indian Archipelago –
140; 151; 160; Read Chapt 13 again with sections; 183; 186; 189; 200; 205 list of good sections in Ludlow Rocks; 211; 230; 233; 235; 243; 244; 245
18 *18–24m/w* compare with coasts of Patagonia in the map appear like isld in the map.– **104** *21–25m (Buckland), 29–31m* **109** *33–38m* **111** *11–15m* **116** *24–30m* **140** *1–31m* **151** *33–37m* **160** *23–28m* **183** *14–17m/w* Do they reappear in the Carboniferous **186** *6–14m* **189** *4–8m* **200** *17–21m* **205** *14–23m* **211** *3–9m* **230** *33–38w/wb* p109. look back to Malvern ? several other instances occur of reelevation of lines/volcanic eruptions. & on simple lines of violence **231** *32–35m* **233** *14–20m/w* Curious analogy with Falkland Isd the sandstone there resembling Caradoc sandstone **235** *24–32m* **243** *12–15m* **244** *17–33m* **245** *19–24m* **246** *20–23m, 26–39m* **247** *1–7m, 22–29m*

vol. 2 NB O Species Theory
256; 260; 262; 271; 273; 277; 278; 283; 291 Bedded trap. worth visiting; 299; 360; 374; 400 how curious the connection of sandstone caradoc at Falklands with quartz; 407; 421; 426; 482; 491; 515; 517; 522; 534; 553 & 554 & 557 On range of Mammalia; 560 do; 564; 569; 572
256 *6–21m/11–13w* rather faulty **260** *21–25m* **262** *1–11m, 7–13m* **271** *10w* Perr *fig.41.m* **273** *1–6m/w* I much suspect metamorphosed dikes **277** *25–30m/w* Cordillera same case **278** *29–31m/w* analogous to the copper mines of Chile **283** *4–10m* **291** *30–42m* **299** *1–8m* **360** *18–25m, 26–33m/28w* V. p.362 **362** *32–39m* **374** *11–15m/15w* V. p.377 **377** *22–24m, 24–28m/24w* see p.378 **378** *16–21m, 22–28m* **400** *5–9m* **401** *1–5m* **407** *25–38m* **421** *12–18m* **426** *1–6m* **482** *10–15m* **491** *25–29m* **515** *5–9m/w* this shows the withdrawing power of the sea **517** *12–15m, 23w* i.e. islands **522** *6–32m* **528** *8–10m, 24c/w¢* **533** *3–5m* **534** *37–39m* **536** *8–11m, 9–14m* **553** *20–22m* **554** *9–12m, 15–17m* **555** *15–16m (Strickland)* **557** *wb* Mammalia on both sides of channel dividing England good instance to remove difficulties – they might have been before united. **560** *21–24m* **564** *15–22m* **569** *9–26m* **570** *20–22m, 32–38m* **571** *3–5m* **572** *6–12m*

vol. 3 NB 583; 584; 585; 589; 665; 666 eyes in Cymothoadae, sexes of Q; 671; 701
583 *10–43m* **584** *5–35m/25–29w* if seas less divided this would follow **585** *8–17m/10u "true | transition", 28–31m, 33–36m* **589** *4–6m/ !!* **595** *31–39m/33–35w* only analogy? **665** *1–15m, 29–32m* **666** *32–37m, 33–44m* **667** *43–44m* **668** *wb* Nesocila **669** *20–29m, 30–33m/ 33u↔/w* from me?! **671** *14–16m/15w* Falkland Isld **701** *33–42m*
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MURCHISON, Roderick Impey *The Silurian system* (from *Edinburgh review* April 1841) [Down, I]

MURPHY, Joseph John *Habit and intelligence* 2 vols.; London; Macmillan; 1869 [CUL, I from publisher in vol. 1]
af, beh, ds, he, hl, mhp, ig, no, oo, pat, phy, sl, t, tm, v, y

vol. 1 NB p.215; 233; 237; 238; 241; 253; Carp 258♦ Man♦; 263; 265
294– contractile Sarcode with muscles– Hypothetically there must be diffused nervous muscle in lower animals & even Plants – 304 Surely ♣ in fish we have

gradation to bone from cartilage?– Other tissues?–
301; 303; 307♦; 322
✍ 339 Causes of difference in number of offspring – Ratios of increase & Struggle for Existence. See H. Spencer, Principles of Biology
SB ➾ I.
233 Medusae will root & develop polypites
237 ● of Ungulates alone bear horns
238 Tissues of all Vertebrates homologous
241 Serial Homology ought to precede Homologies between distinct species.–
247 on Difference in no of cervical vertebrae in different Mammals.–
253 differentiation of tissues & organs mark of Highness
265 The young flowers which swim vertically retain primordial condition & so may be said to reverse–
294 on possibility of transitions in tissues – (see M.S. notes at end of Book)
301 Homologies of Trachea – Mucus-sack
322 striped muscles common to Vertebrates & Invertebrates, cd have been derived from common ancestor for wd have been too low.–

215 *17–20m, 36–37m (Huxley)* **233** *34–38m (T. Hincks)* **237** *22–24m* **238** *18–23m, 24–27m/w*● **239** *18–21m* **241** *11–20m* **247** *5–19m* **253** *1–5m* **258** *1–5m* **263** *11–16m, 18–23m, 28–37m (Huxley)* **265** *29–35m/→* **294** *1–11m* **301** *19–25m* **303** *16–25m* **304** *35–38m (Spencer)* **305** *13–17m* **307** *4–18w*♦ This seems all rubbish *35–38m* **320** *1–15w* Look at the greyhound See dom. animals **322** *11–17m, 27–29m* **323** *28–30!* **339** *21–29m/17–27w* Death falling on young more probable selection

vol. 2 NB p.2; 186♦ read; 187 ♦; 190♦ Copied
SB ➾ Vol. 2
p.2. forms of Blindness in which iris opens & closes & yet no transmission of light.–
v *3m* **viii** *2m* **xiv** *8m, 21m* **xvi** *25m* **2** *35–37m* **59** *24–31m* **186** *37–39m* **187** *33–36m/34u "selfish | contentious"* **188** *1–6m, 12–17m/14u "are fidelity", 26–30m* **190** *31–36m*

MURPHY, Joseph John *Habit and intelligence* 2nd edn; London; Macmillan & Co.; 1879 [Down]
no, sp, v

NB 241 Delboeuf
Law of Equality of number of vars & species
241 *21–28"..."*

MURRAY, Andrew *The geographical distribution of mammals* London; Day & Son; 1866 [Down]

MURRAY, Andrew *The geographical distribution of mammals* London; Day & Son; 1866 [CUL]
ad, af, ch, gd, geo, h, sp

NB All on Geographical Distrib.
♦ no explanation of adaptation–
p.8 Change of dogs in W. Africa
17 error
19; 20 & 30 & 32 Glacial
34; 36; 38 to 56 Man; 57 do; unimportant
126; 138; 140; 144; 151; 155 Reindeer of N. America; 197; 209 Glacial; 213; 216; 261; 312; 314

8 *33–42m* **17** *28–30m* **19** *16–23m* **20** *15–23m/16–17w* I dispute **30** *13–17m* **31** *3–8m* **32** *26–32m* **34** *23–28m* **36** *6–10m* **38** *39–41m* **39** *26–28m* **40** *9–12m* **42a** *32–38m (Malmgren)* **42b** *33–38m* **43** *8w* Spain **45** *34–41m* **56** *17–21m* **57b** *36–42m (Pickering)* **59a** *22–35m* **59b** *38–43m* **126** *2–15m* **127b** *35–43m (Falconer), 46m* **138** *15–19m, 22–27m (Lund)* **140** *6–10w* Dr Hayes○ says now a native of Greenland **144** *20–27m* **151** *32–36m* **155** *5–8m* **197** *31–35m (Cuvier and Owen)* **209** *22–36m* **213** *31–43m* **214** *7–10m/1–9w* This theory does not account for affinity of American & Indian genera. *12–23w* Same species being accorded 2 distinct Indian lines will account for their similitude *39–41m* **216** *7–14m* **261** *1–8m* **312** *1–7m/3–4?* **314** *5–14m*

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vol. 1, 218 *4–6m* **219** *13–16m* **220** *1–6m, 26–32m*♦ **221** *14–18m*♦*, 27–30m, 31–33m* **222** *1–3m, 5–9m, 10–11m, 13–15m* **225** *22–23m* **226** *14–24m* **228** *21–29m* **229** *1–10m* **395** *25–26m* **396** *29–30m* **397** *3–5m, 15m, 19m* **398** *5–6m*
vol. 2 ℘

NÄGELI, Carl von *Botanische Mittheilungen* 2. Band; München; F. Staub; 1866 [CUL]
ad, af, cc, ch, che, cs, ct, ds, em, ex, f, gd, geo, h, he, hl, hy, ig, in, mhp, mn, no, oo, or, pat, phy, sl, sp, spo, t, ta, tm, ts, v, wd

SB ☐β
106 <u>Von Baer</u> – believes Bee on its own type higher than Fish
210 He has 2 embryos in his possession that he cannot tell whether they are Mammals or Fish or young Birds – (good to quote)
211 The more different 2 animals, the further back we must go to ♣ find similarity. (I believe date 1828 see last number. Must have preceded M Edwards
214 The embryo of higher animal resembles the embryo of lower
217 Dog & Pig resemble each other – still longer Pig & Cow
219 & 220But embryo of Mammal more like mature fish, than embryo of Fish is like mature Mammal
221 Arrests of Development well established for Monotremes
228 The higher the histological & morphological differentiation, so is perfection of type
229 Retrogression of types
231 Ruminants stomach more perfect than mans
267 Twisting of leaves in relation to great size: correlation??

103 *wt* All marked **110** *25–34m/w/wb* var. grows everywhere in all soils strongest Europe – But other vars also produced (it is a polymorphic genus) **111** *9m, 16–17m, 21–24m/w* also Differt vars in same plant **113** *10–17m* **114** *wt* other examples as before **115** *5–11m, 14–15m, 17–20m/17–25w* 2 vars adapted to 2 stations rarely mixed in equal number ♣ in both *31–33m* **116** *1–2m, 4–11m, 16–22m/w* cases of direct action *23–30m* **118** *3–22m/5–12w* On Hardyness of Plants *13–32w* Various vars in same station, so not effect of evolution *24–32m* **119** *16–19m* **120** *wt* growth of size & chemical products direct effect of conditions– *1–7m/w* Light on colouring matter **121** *wt* Alpine forms due only to want of food & not form true races *1–10m* **122** *15m* **123** *1–14m/w* He argues from these facts that height no influence but these no proof – so others *wb* He overlooks effect of length of exposure & inheritance – **125** *16–26m, 29–34m/29w* Summary *wb* Maintains that Alpine height does not cause Large size of flowers. **126** *3–13m/w* My objections of time & chance = spreading considered. **127** *wt/1–19w* Variation must depend on some chance relation between state of organism & certain conditions *17–19u "Ueberhaupt | Ausnahme", 32–34m* **128** *1–3m/wt/1–20w* These close species which inhabit distinct Districts ♣, shows how little we know about adaptation of near var – So some close species, live mingled together. Are we sure that the 2 Oaks are not specially adapted for special circumstances – 2 Anagallis○ *15–16u "Primula | elatior", 23–24u*↔, *29–30u "die | andere", 33–34u*↔ **129** *wt* When alone, each will grow on wrong formation; but not in company for then I suppose competition, this looks like adaptation. *1–3u* ↔, *4–7*☞, *19–26m/7–17w* says all <u>true</u> local vars. wd behave thus. **130** *wt/1–11w* All foregoing reasons do not apply to vars. arising from inner causes; but something must set inner causes into action. *5–6u "durech | sind", 25–30m/w* Opposed vars. arise under cultivation **131** *wt* one plant might absorb different elements from another *1m, 1–2u "äussern | können", 18m* **133** *1–7m*◆ **134** *wt/1–24w*◆ He seems to admit there is some relation between variation & extreme conditions & *1–24w* He remarks that greater size independently of good soil ♣ never could become hereditary & constant *wb* Effect of grafting – & cultivation & wide range & bud-variation all show that extreme condition have close relation **135** *3–20m/1–20w/wt* He admits that difference of soil &c may in course of generations affect chemical & molecular constituents & then lead to changes of form – this is the same thus – *23–33w* as individuals differ so will results differ in fluctuating variability **136** *wt* a chill is direct cause of various illnesses – *1–11w* but here denies all before apparently admitted *16–33w* Denies that a plant can in same bed with others absorb different nutriment ♣ **138** *15–18m, 30–34m/26–34w/wb* permanence in culture in garden no test of specific distinction **141** *wt* Yet if these sp. were cultivated like P. Ponticum it wd no doubt vary thus perhaps not so much.– *5a/u "Alpenrose"/w* Rhododendron ferrugineum *6–7u*↔, *8–10m/w* (a) *8u "trockenen", 8u "oberitalienische", 9u "700 | 1300", 20–27w* similar facts **143** *wt/1–10w* objects to Hooker on acclimatisation.– (He is a general objector.) *13m, 20–31m/w* He tried experiments but failed with uncertain results **144** *3–6m, 11–12w* explains fact **149** *wt* difficulty of knowing direct action of conditions on account of Selection.– *1–6m*

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150 *wt* Asks Have plants which ♣ have long lived under different conditions different constitutions, though externally alike? He doubts **151** *1–2w* Conclusions on Direct action *5–6w* natural Distribution *7–9u↔, 11–12u↔, 19–20u "innere | bedingt"/w* But what excites them; something must, as with illnesses.– *25–34w* His Causes work through chemical condition of Plants & cause direct & indirect effects **152** *29–34m, wb* He assumes direct effects never become heredetary.– **155** *wt/1–28w* He allows that changed conditions give impulse to variation; the differences in the results must depend on differences in the individuals; but these differences must have had some cause. *17–34m* **156** *10m* **158** *wt/1–23w* I think here he attributes the mixed vars in same locality to selection, or adaptation *wb* Finally I do not see that he throws much light on ♣ subject – Everything remains as odd as before – some good facts on Distribution of Varieties.– **164** *wt/1–21w* On Alps when no detritus – chemical nature of racks has influence on distribution.– *18–31m/w* representative species on different soils **170** *13m, 16–32w* Closely allied plants excluding each other – my view **172** *6–26w* Struggle for existence explains well, but not new.– **174** *34m* **175** *wt* Both the Achillaeas will live on wrong soil – if only one form is present, so no struggle.– *7–13m, 16–18u±* **176** *11–26w* These sp. exclude each other according to dampness.– *20–23m, 28–30m, 29–32m* **177** *9–13m/11w* do **179** *wt* Thinks many plants do not grow in certain places, because seeds have never been brought there. *3–7m, 25m* **180** *9–11m, 24–25u "Auf | Arten", 27u♠* **181** *11u "Kerner"/11–13w* doubt his observations *29u "Gültigkeit"/w* authenticity **182** *19–21u↔, 29m* **187** *19w* I have not read **294** *10–12w* some close plants distinct *15–18m/16u "Mittelformen", 17u "Verbindungsgliedern", w* some thus *20–21m, 25–27w* says very important?? **300** *12–14m* **305** *14m* **310** *25–34m, wb* argues well against those intermediate forms, which are constantly or frequently found, near the forms which they connect, being Hybrids **312** *wt* a complete graduated row of intermediate forms may be hybrids, but such cases are rare – The exactly intermediate wd be rarer than the steps on either side. *12u "Verfechter"/w* defender **313** *25–29m/28–29u "zwischen | officinalis"/25–31w* intermediate forms exist both Hybrids & really intermediate & constant & fertile.– **314** *1–20w* He evidently doubts (with reason) any ♣ constant intermediate form being Hybrids. **318** *12m* **319** *wt* (a) If species which are connected by intermediate forms are blended with single species the result monstrous.– *5–10m/7w* (a) *13–18w* must be enumerated as intermediate forms– **320** *7–18w* these are good instances of a species constant in one place & variable in another from crossing with intermediate forms. *21–23m* **324** *10m, 17–20m/16–26w* Middle forms not Hybrid generally inhabit nearly same districts as the forms they connect– *29–33m/w* but less in number *wb* I presume he attributes the intermediate forms to variation **326** *12u♠/w* Hybrid *18w* Hybrid *28w* Hybrid **327** *2–3u "beiden | Uebergänge", 3–5w* Hybrid? or middle form? *34w* Hybrid **328** *5w* Hybrid? *11w* Hybrid *21–22w* Hybrid *25w* Hybrid *32w* Hybrid **329** *18–20w* gradations from crossing *29–30u♠↔* **330** *5w* Hybrid *23–24u "da | vor", 30u, 32u "Das | Vorkommen"/32–34m/w* not Hybrid yet intermediate **331** *2–26w* it seems improbable to decide whether a hybrid, which in places has become constant, or has arisen from variation of one of the 2 species which it connects.– **332** *wt/1–8w* another doubtful case *8–9u "Sie | acaule", 10–15m* **333** *4w* Hybrid **335** *5u♠, 7–8u "Dieses | Ursprungs", 13w* Hybrid *17u "Zwischenformen", 18u "wiederholt | Floristen"/w* not Hybrid *21–24u "fast | der", 31–32u↔* **336** *13–14w* Hybrid *24w* Hybrid *32–34w* True intermediate form **337** *17–18w* Hybrid *23–26m/w* Hybrid **338** *15–16w* Hybrid *23u "Sie | Uebergangsreihen", 24–28m, 30w* Not Hybrid **339** *3–4w* not Hybrids **342** *5–10m, 6–8u "welche | auftreten", 28–33m/29–31u↔* **343** *32–34m/34u "entspringen | Ursachen"* **344** *3u "verzichten"/w* delay *4–6m/5–6u↔* **345** *10u♠/10–14w* most variable & graduating of all endemic genera. *31–32u "die | sind", 34u "nur | Species"* **346** *4–6m/w* between the 3 no intermediate forms *24–32w* looks at this species as in process of formation the intermediate forms not extinct **347** *5–8w* also Hybrids formed. **349** *wt* The Hauptformen are much commoner & ♣ then the intermediates *1–3m, 4u "Die | vielen", 5u "die | finden", 7–8u "Ich | von", 10u "Tausendfache übertroffen", 11–17m/w* Intermediate do not extend beyond range of Haupt-formen *19m, 20–28m/w* range in height rather more than Haupt-f *30–34m/m* **350** *14–17m/w* no intermediate forms between exclusively Alpine & exclusively plain species **351** *2m, 12–13m/10–15w* What he has said before on Hybridism applies to ♣ Hieracium **355** *18m, 21–25m/w* are Hybrids in some places **357** *9–11m/u "H. | angesehen"*

359 *1m* **361** *10m* **362** *17u♠/18u "Welche | Zwischenformen"/16–19m/w* the only 2 forms previously characterized **366** *2–12m/w* Evidence from treatment by authors how intermediate some of these forms are **367** *wt* The Haupt-forms must first be settled & then the intermediate forms – (so it wd be if we possessed all linear descendants) *1–3m* **393** *14–24w* I think because as much vars of one form as of other *22–24m/22u↔* **394** *12–16m/12–14u↔, 23–28m/w* Constancy most important element. **396** *10m* **397** *wt* We must judge of constancy only from many individuals from many different stations.– *1u "verschiedenartigsten"* **399** *28m* **401** *19m* **402** *11–15m/w* closely allied species exterminate each other **404** *30–33m/w/wb* but no great difference effect of good soil– **406** *5–15m/6–7w* grades of species *16–27m/w* He does not believe Kerner **407** *15–22m/w* natural selections of genus going with power of Hybridity **410** *wt/1–13w* Does not believe the intermediate forms are commonly Hybrids **411** *17–24m/wt/1–11w* Between 2 forms either a few intermediates or a whole series of steps, & in the latter case the species more allied *↕w* N.B May not many of Nagelis constant intermediate forms be Hybrids. which ♣ are constant like Gärtners ♣ hybrid Dianthus? I suppose not.– *27u "grenzlose Verwandschaft"/27–34m, wb* In these the Haupt-form, (independently of the intermediate forms) is variable, whereas in former case, when growing solitary the Haupt-formen are constant **412** *13–15m, 21–25m/22w* examples **413** *wt* We have, also, variability in the first individual planting Constant as in Vine-tendrils – or occasional i.e. sports, or bud-variations *↕w* We have protean or chaotic species nowhere ♣ constant – species constant in places but connected by few or more intermediates, & true species not thus connected.– it looks like a process of exterminating the intermediate links.– *28–31m, wb* His grades of affinity graduate into each other.– **414** *10x/wt* This shows that conditions have certain effects *17x/wt* The chaotic forms in places have fixed characters *9–11m/w* Hybrids & intermediates absent in certain localities *12–16m/w* examples *15–20m, 22m, 28–31w* mingled vars. adjoining & representative vars Distinctly-inhabiting vars **415** *5–6u "hängt | dasein"/3–6w* This refers to true species *12–14u "entweder | sind", 15–22w* so much 2 plants mingled, generally so much more synodically distinct *19–21w* & therefore can live together *21–23m♦, 30m/wb* Close♦ species of same genus tend to exclude each other.– **416** *4–7w* representative forms. *6–8u "oft | die", 20–21u♠/21–22u♠/19–23m/w* more forms adapted to different stations *25–27m/wb* These forms sometimes found mingled, sometimes as synodic or representative **418** *wt/1–16w* Constancy alone will not decide what forms to call species; for many finest varieties are constant & Jordans species wd all have to be admitted. Comes to what I said amount of difference deserving a name. *20–22u↔, 28–34u↔* **419** *1–2m, 17–21u "So | Zeiträume"/17–33w* a species depends on degree of relationships (or difference from) other forms. **420** *24m* **421** *11m, 22–27m/w* all the forms which are connected by intermediates cannot be united as a single species.– *33–34u "doch | sind", wb* "generally sharply defined" must be admitted as part of definition of species!! **422** *11–29w* Rules cannot be applied to forms inhabiting distinct areas. **423** *33u "Zwischenarten", 34m, wb* Ought to be so designated, so new term **426** *31m* **427** *3–4u↔/6u "bleiben | Hauptformen"/wt/1–6w* Thinks the variables & intermediate forms extinguished by competition. *22–24m/22–23u "Gattung | Entwickelungsprocesses", 23–32m/25–29w* The glacier is a stream, though one does not see the streaming *33w* examples

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⟨markings presumed to be by FD⟩

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cc, ch, cs, ds, fg, fo, gd, he, ig, in, mn, no, pat, sl, sp, sy, t, tm, ud, v, wd, y

NB ✐ 103; 104; p133 use; Use Q✏

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SB □β

Used
Nathusius Schweineschaedel
⟨over⟩ ✍ *⟨not CD except* X *and* ◆✏*⟩*
Nathusius p.2
p.104 X✎ The culture, shape of skull does not depend upon race most different races have it, yet most seem crossed with the Indian.
p.105 x✎ about skull – dogs & Nata cattle
106 but common swine have not the short culture-head
113 the Diploe different in wild & culture races. Extremest culture-skulls
131 x✎ Great Yorkshire race – probably crossed with Indian, has all its characters. wonderful changes incisors do not touch. not monstrosities for all inherited *⟨u*✎*, CD⟩*
133 X✎ articular surfaces of condiles of occiput modified head not much used
134 case for brain not much changed
135 all these great changes only a climax of those seen in wild boar races
136 all house pigs belong to the above two races
138 X✎ 1/32 even 1/64 of Indian blood is sufficient plainly to modify the skull
138 great differences in the ears &c &c in the 2 great tribes
139 all Indian Swine introduced into England have short ears
140 X✎ Q Berkshire swine of 1780 is quite different from that of 1810 & since that time 2 quite difft races have borne that name
141 All the new English breeds seem to have Indian blood
142 Sculptures in Herculaneum shew no doubt that Neapolitan breed then existed. this breed & Andalusian & Rutimeyer's grau bundtner race are all like Roman therefore like the Indians
144 Roman probably is a cross from the Indian
146 is not convinced that the turf-swine was wild, but will not dispute it – 147. gives reasons why with swine difficult to tell – 148 in India wild cross with tame
149 almost certain that turf & Indian closely allied
150 curly swine with curly wool in South East Europe from lower Hungary – closely allied to Indian
153 Japan swine in skull is near to Indian.
157 certainly stands near to short-eared Chinese race.
⟨over⟩ Used✏ *⟨CD⟩*
⟨over⟩ 160 Nathusius
Rutimeyer has shewn that N. African wild swine is like European
163. S. verrucosus excluded 164. S. Celebensis skull like Past
165 S. vittatus from Java like skull like Indian
166 S. Timoriensis close to vittatus
167 in S. barbatus tho' with long face, lachrymal bones are short
168 S. lucomistax from Japan like S. vittatus
169 Arn wild Pig
✍ *⟨CD⟩*
173. Summary on wild swine
175. Diagnosis
185 wild Boar of Hindustan
⟨over⟩ ✍ ◆✏ *⟨CD⟩*
Laws Nathusius Pigs 1
p.2. X Gestation earlier in Culture-races & features less matured
20 – teeth developed in well-fed races
63 S. scrofa – tamed races – ♣ greater height of head in relation to length – in all dimesions broader – p.66 – all differences variable 68.– in tamed intermediate in character between young & old wild explain changed shape by less use of scratching in ground.
71. The position of rows of teeth a central character.
72. Much intermediate variability.
74 X✏ In these swine beginning of changes more plainly seen in culture-races–
75 These swine in Russia & all over N. & central Europe.
76. Difference in length of Ears– hair– colour. length of limbs & shape of body all different.
Indian
⟨not CD; X✎*CD⟩*
77 Almost all now crossed with Indian; not known wild, comes from China
83 Shortness of lachrymals most remarkable character
86 and the shape of the palate & position of row of teeth
89 position of last upper molar– 89 X Considerable slight differences in teeth – 90 width of fore part of palate does not depend solely on divergence of pre-molars
91 X skull broader in relation to length than in common swine
94 Indian swine a distinct species if no reference made to domestication. [✏Culture races]✏
95 the above Indian pigs not more affected by culture than common swine
99 X Berkshire not high culture race & descended from Indian, a born dispeptic individual had skull much modified & legs

elongated, & period of appearance of the teeth & crowns of molar teeth affected.
<u>Laws</u>✐
103 rich food during youth gives short & broad head
103 X in high culture races the incisors stand much higher than back teeth; the canines of upper jaw stand before the canines of under jaw & this is a most remarkable anomaly.

2 ↕*m/w* period shorter in the early matured races. gestation different in sheep & swine.– In early culture races of swine, the young less matured in skull ♣: perhaps from crossing with Indian. **3** *16m,* ⇑*4m* **4** ⇑*5–1m/w* change of skull from growth to adult comes from elongation of front part of skull & separation of the 2 laminae **20** ⇑*15–10m/w* teeth developed earlier in well-fed. culture-races than in common pigs. **23** *1–2m* **27** *20–23m* **63** *6–8m/w* – in tame i.e. face shortened. ⇑*2–1m* **66** ⇑*4–1m/w* differences in these swine from wild are variable. **68** ⇑*20–15m/w* common swine's skull intermediate between that of young & old wild swine ⇑*15–1w/wb* Explains differences by primarily wild swine wholly living by rooting○ & using greatly the muscles attached to back of head– entailing that other differences in skull by action during youth – lays great stress on this view.– Mem. he does not here refer to Culture-races.– **71** ↕*w* a ♣ constant difference in flexure of row of teeth ♣ in common & Indian swine or their crosses.– **72** ⇑*12u "kürzen | des",* ⇑*15–10m/w* individual variability **74** *12m/u±, 10–13m/w* In these swine beginning of changes, which are variable, in teeth which are greater in culture-races *17–20m/w* wild swine with simple teeth **75** ⇑*16–13m,* ⇑*4–3m/u±/w* such swine in these countries **76** *6–7u "Ohrlänge | Rippen"/w* of these swine with same skull these parts differ & can be selected *22u "lang | kurzohrige", 24u "osterlogisch | begründet", 25–27m/w* He <u>formerly</u> placed some of the short-eared races in this class, which have been crossed with Indian. **77** *9u "indischen Hausschwein", 10m/u↔,* ⇑*8–3m/w* almost all cultivated swine crossed with Indian ⇑*1u "nur | Culturrasse"/w* not known wild **78** *14–15u±/14–18m,* ⇑*5u "zwei"/w* Few skulls exist only 2. **79** *2m/u "chinesischen Hafenstädte",* ⇑*5–1m/*⇑*4u "China | 14"* **83** ⇑*8–7m* **86** *10–15m/w* shape of palate or space between teeth different in Indian & wild ⇑*14–12m* **89** *3–4m, 13u "bedeutende Verschiedenheiten"/w* considerable slight differences in teeth **90** *6–8m/u±, 12–16m/w* width of fore parts of palate does not depend solely on divergence of premolars ⇑*12–11m* **91** ⇑*8u "ist | zur",* ⇑*6u "Hausschwien sind",* ⇑*5u "in | geringerm"* **92** *8–10w* Breadth may have been graduated. *14u "Kürze | Breite"/m/w* no trace of these in common swine.– ⇑*1u "eine | Schweine"* **93** *1u "dass | im", 3m/u "Breite | Gaumens"* **94** *5–12m/w* concludes that Indian race descended from distinct wild species & this wd be admitted by Zoolog. if no reference made to identity & domestication **95** *10m, 11–17w* The above Indian pigs not more affected by culture than common swine before described.– not highly cultured race ⇑*8–7u "und | Jugend",* ⇑*6u "einen | aller"* **99** *15–18w* Berkshire not very high culture race. skull & descended from Indian.– ⇑*16–13w* A Dyspeptic individual from youth ⇑*10–9u±/w* skull thus modified by want of food – Can this be Reversion? **101** ⇑*4–1m/*⇑*4–3u "Kopf | geworden",* ⇑*2u "ernährten | geworden"* **102** *20–22m/w* Period of teeth appearance & structure affected in this dyspeptic pig. **103** *4–7m/w* division of crown of molar teeth affected. *11–12m/u↔, 16–20w* & Do not use their muzzles because ringed ⇑*6u↔,* ⇑*1m/u/c/wτɇ, wb* see p.130 **104** *5–6m/w* Proofs *9–12m/9u "langohrige | Rücken", 10u "diese | wie", 15–22m,* ⇑*9–3m/w* Nata Ox **105** *1–8m/w* Offspring vary in shortness of head according to keep○ *17–19m/w* says not hereditary!!! *19–21m/w* happens with our cattle & sheep *23u "Egelkrankheit",* ⇑*14–12m/w* Bull-dog analogy ⇑*11–5m/w* argues this does not contradict his explanation of want ● of Snout **106** *1–2m/1–4m/w* common swine like wild-Boars have not this short head *13–16m/w* <u>probably</u> might be gained. by progeny of common wild Boar. *19–21m/u↔* **108** *13m/a "Form"* i.e. short-head **112** *3u "Stirnhöhlen", 4m/a "Schwein"* in cultur pigs *4u "Entwicklung | aber"* **113** *4–7w* Diploe different in wild & cultur-races **130** *9–11m/w* p.103 ⇑*20–5m* **131** *8–10m/u±, 21–22u↔, 21–30m/*⇑*3u "Gehörgänge"* **132** *2u "Augenhöhle",* ⇑*15–13m/w* do not touch **133** *4u↔/m/w* all inherited ⇑*20u "Gelenkfläche"/*⇑*20–15m/w* articular surface condyles of occiput modified → ⇑*4–1w* because head not used **134** ↕*w* can affect Brain? Very similar **135** *9u "nur | dort", 8–12m/w* All these great changes only a climax of those seen in the races like wild Boars. *14u/wτ,* ⇑*10–1m/w* two Races **136** *3–7m* **138** ⇑*15–13m,* ⇑*12–8m/w* Argument for Indian Race being parent of Domestication ⇑*4–1m/w* All these differences in pure European & Indian Races **139** ⇑*14–11w* Siam & China all

NATHUSIUS, VORSTUDIEN

with short-Ears ⇑*9u "Siam",* ⇑*4m/u "Rasse* | *Pallas",* ⇑*1m* **140** ⇑*5–2m* **141** *14–19m,* ⇑*10–7m* **142** *11–16m/11u "aus Herculaneum"/w* Neapolitan Breed! **143** *2–5m/4u "Andalusien", 6–9w* All these like Indian *11u "Graubündtner", 12u/wτ,* ⇑*16–15u "dass* | *steht"* **144** *19m/u "romanische Schwein"* **146** ⇑*11–10u↔/*⇑*12–6m,* ⇑*12u/wτ,* ⇑*5u "wilder"/w* is not convinced that turf swine was wild **147** *11–16m/w* wild swine in fertile plain joints different ⇑*19–14m/w* turn out tame when stock of wild reduced **148** *7–14m/w* In India wild swine cross much with tame ⇑*19–14m/w* Rutimeyer difference between wild & tame born generally correct, but must be received with caution with pigs ⇑*13–11u±* **149** *1a "Formen"* Turf & Indian *1–3u±, 5–6u "Die* | *Gaumens", 10–12m, 15w* Not certain *16–17u↔,* ⇑*16u "des indischen"/w* only for Pallas ⇑*13–12u "alle* | *Japan",* ⇑*8–7m/u↔/w* not certain for E. India **150** *7w* curly Hair *12u "südöstlichen Europa",* ⇑*14m/u "sogenannten* | *Schwein",* ⇑*12u "aus Ungarn",* ⇑*4u "Niederungarn"* **151** *1–3m* **152** *8–10m/w* like Indian **153** ⇑*15–13m,* ⇑*8–7u "Der* | *bekannt"* **154** *1–8w* Gray makes it a distinct genus ⇑*14–13m/u "das* | *nahestehend",* ⇑*5–4m,* ⇑*1u "weil"/m/w* Indian swine has not forked snout **156** *3–9m,* ⇑*14–12m* **157** ⇑*7–5m* **160** *4–6m, 10–13m, 15u "Nilinseln"/16u "Aegypten"/15–17m, 19–20?* **161** ⇑*14–13u "das* | *ähnlich",* ⇑*6–4m/w* doubtful **162** *13–14m,* ⇑*10–1w* Gray not to be trusted in the least **163** *7–9u "kann* | *nahe", 14–18w* whether Hindostan & European different not yet known.– ⇑*4u "S. verrucosus"/w* Excluded as parent of our domestic Pigs **164** ⇑*8u "S. celebensis"/*⇑*8–1w* skull very like that of S. verrucosus & not parent of domestic **165** *5m,* ⇑*13u "S. vittatus"/w* different from European & like ♣ Chinese skulls **166** *17–18m/u "Sus* | *vittatus",* ⇑*10m/u↔* **167** *12–13u "dass* | *Wildschwein"/w* though with long face *14–17w* argues that ∴ specific character in Chinese **168** *3–5m/w* in general appearance like S. vittatus *11–13u±/m/w* but in these respects liker to S. vittatus *19–20m* **169** *5–6m, 7u "Typus* | *haben",* ⇑*8–6m* **170** *8–9u "dass* | *Thränenbeins",* ⇑*19–15m,* ⇑*14–8m/w* no proof that wild **171** *wt/1–2m* if Arn Pig is feral shows constancy of character of Indian Swine **173** ⇑*10–1m* **174** *"5"–"7".m* **175** ↕*m, u±* **176** ↕*m* **179** *1m/u "Das* | *kurz"* **183** *7–8m/u "männlichen* | *Cochinchina",* ⇑*5–3u "Eckzähne* | *gleich"* **184** *15–16m,* ⇑*14m/u "ächten Maskenschwein",* ⇑*6u "Breite* | *Gaumens"* **185** *1m/u "auch* | *von", 7–11m,* ⇑*10u "sind* | *europäischen",* ⇑*9–8m,* ⇑*6–3m* **186** ↕*m*

Atlas *Taf. II, "10".**

NATHUSIUS, Hermann von *Vorträge über Viehzucht und Rassenkenntnis* 2 vols and supplement; Berlin; Wiegandt & Hempel; 1872–80 [CUL]

cs, ds, f, fg, he, in, pat, sp, sx, t, ta, tm, ud, v, wd, y

vol. 1 NB 8; 26; 63 Descent; 64 Horse; 135 Sheep Case Q

title page *wt* Horn of Sheep **8** *4–8m/1–13w* now so many no such need **21** *20m* **26** *9–17m/w* False the Chili ones are cross between goat & sheep *24–30m/w* swine distinct. **28** *10m* **35** *14–15m* **47** *10–11m* **50** *12m* **59** *31–34m/32w/wb* (a) individual differences **63** *5–9m/w* females more like males most variable *11–13m, 11u "eigentliche Representant"/12u "welches* | *Universellen"* **64** *1–11w* can Long Horns be Reversion to wild state?– See Antelopes *18–20m/16–20w* castration stops Horn in Sheep (a) *3–31w* castrated rather late – the effect may be known when done earlier – castration ought to produce greatest effect. How with Welsh sheep on both sexes – but then they end *wb* (a) Is there not here curious relation & evidence of Horns retaining more of S. Lex. character than in cows – in as much as the females of some breeds have no horns? In Merino is white males alone are horned. **68** *3m, 5u "ganz gleich"/4–7m/w* Free-martin horns like oxen – ! **69** *12–16m/17–18m/12–19w* Food makes differences of period when adult character attained *21–22u↔/21–24w* even when capable of reproduction **71** *24m* **93** *wt* (a) early & late maturity depend in part on food of pregnant mother & milk, & partly on race.– *4m/w* (a) *7m* **94** *25–33m/3–34w* proportion of 3 stomachs altered in highly nourished young **98** *14m, 16–21w* early maturity only slightly hereditary **99** *3–6m/w* Treatment alters period of gestation *18–25m/21–28w* related to early maturity & 1/2breeds show hereditary **100** *wt* individuals differ in profiting by same amount of food *4–10m* **102** *23m* **109** *17–18m, 27–29m/27–31w* castration causes less consumption of food.– **112** *1m* **118** *25–31m/11–31w* Rule of male or female transmitting certain parts false.– **122** *19–27m/15–28w* Merino sheeps tails cut for years & not inherited. **127** *1–3m*♦ **135** *25–30m* **140** *1–6m/wt/1–3w* of same race individuals transmit with greater power *19–20m* **142** *5–10m, 13m, 15–23w* Does not believe in individual potency of transmission **145** *24m* **158** *4m* **166** *27m*

vol. 2 ℘

Supplement *"Kleine Schriften und Fragmente"* Berlin; Wiegandt, Hempel & Parey; 1880

iii ⇑*15x/u "249–264"* **Inhalt** *"93".m, "179".m*
℘

NATURAL HISTORY 2 vols. of plates; London; Whittaker; 1824–26 [Down, pre-B]

THE NATURALISTS'S LIBRARY ed. W. Jardine *Ornithology* vols 9, 14; Edinburgh; W.H. Lizary; n.d. [CUL]
beh, cs, gd, hy, mg, sx, tm, v, wd, y

vol. 9, Pigeons; SB ❑β
117 Carpophaga oceanica excrescence at base of Beak sexual
178 Wilson & Audubon on rice in Pigeon crops at New York
90 *23–26m* **113** *21–30m* **117** *18–23m* **136** *20–23m/w*● **140** *1–5m* **144** *9–11m, 12–15m* **146** *23u "Orkneys"* **148** *5–6m* **151** *19–23m* **153** *12–15m, 24–31m* **157** *12–17m* **158** *10–16m* **160** *5–9m* **161** *6–8m, 15–17m* **164** *11–13m* **179** *1–5m*

vol. 14, Gallinaceous birds; NB 203 205 P superbus
166 169 Argus Pheasant
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129 Turkeys associating. 3 sitting on one nest
138 wild often crossed with tame
173 Siberian or Russian Muffler with tuft from lower jaw
184 Gallus forcatus

126 *17–22m/*Q **127** *1–10m/2–3u "strut|feathers"/6u "strutting|puffing"/3–4*Q **128** *17–19m* **129** *27–30m* **138** *6–16m, 10–15m* **139** *1–3m* **140** *1–4m* **141** *15–19m, 28–29m* **166** *20–25m/22u "feathers|inches"* **167** *12–15m/13–15u "being|flight"/"...", 18–24m (Temminck), 27–29m* **168** *3–7m* **169** *1–3m, 7–22m* **171** *18–21m (Temminck)* **172** *1–18m/3–10w* Malay *21m/w* Sultan Persian *25–26w* X Bearded crested **173** *5–8m/w* Bolton Grey Siberian or Russian Muffler. *10–11w* This Dorking is baby one *17w* The true Dorking *26–28w* A cross from the Silk fowl **174** *1–3m/w* Jap *15c "Crested"* Frizzled **175** *24–25u "with|chestnut"/12–28w* Resembles the black breasted Red Game **176** *1–6m* **177** *7m, 12m/w* nonsense x *13–14m/w* J right I think *17m/w* pumilo is crested *21–22m/w* Sebright not a Bantam *23m/w* not near *wb* x Crawfurd says from Japan. on what authority? **178** *11m/w* Malay **pl. 9** *w* tail purple **183** *wt* Mr Blyth says positively a hybrid between G varius & ...? *wt* N.B G. varius is distinct from G. furcatus or does he mean only Synonym?? **184** *wt* When Blyth says not furcatus does he only mean that G. varius is prior name – I suspect so.– *10u "with|entire"/w* yes *11u "single|springing"/w* yes *12u "they|red"/xx wb* xx if G. furcatus = varius this utterly wrong description.– **pl. 10** *w* Feathers on neck short & rounded Crawfurd says wretchedly unlike **185** *23–24w* so will a pheasant **188** *7u "the|margin", 9–10m/10u "mottled|markings", 15–20m (Latham)* **203** *9–12m/11u "feather|feet", 13–14m, 15u "more|feet", 15–17m* **205** *12u "3|long", 21–23m, 22u "The|length"* **pl. 19** *wt*♠ *237 zt* **251** *3–5m (Dickson)*

NATURAL SCIENCE, religious creeds and scripture truth by "the author of the *Divine footsteps in human history*"; Edinburgh & London; William Blackwood & Sons; 1870 [Down, I by publisher] ℘

NATUURKUNDIGE Verhandeligen van de hollandsche Maatschappij der Wetenschappen, te Haarlem Part 3, 3rd edn; Haarlem; De Erven Loosjes; 1878; containing
FRITZ, Hermann *Die Beziehungen der Sonnenflecken* [Down] ℘

NAUDIN, Charles *Nouvelles recherches sur l'hybridité dans les végétaux* Paris; 1862 [CUL, I]
cs, fg, he, hy, no, sp, t, v

SB ❑β ✍
151 Pangenesis – good on Hybrids being a living mosaic of 2 species & on <u>specific essence</u> of each (this is vague term) being accumulated & self-alternated○ either in ovules or pollen–
161 Definition of a species–
title page *wt* Nouvelles Archives du Muséum /Tome 1 p25 **27** *4w* Father; Mother *20–22m/20–21u "turbinée|ovoïde"* **29** *25–26m* **30** *2–6m* **32** *23–28m/w* First generation flowers of both colours & panachee **33** *1u "bandes|pourpres", 2–3u "quelquefois|couleurs"* **36** *1–14m/3u "deux"/7u "un cependant"/10u "dix-sept"/13u "un|maturité"/10–18w* given in full in Chapt 27 on Pangenesis *22–31m/23–25w* Pangenesis **37** *7–10m* **41** *25–28m* **42** *15–20m* **45** *28–30m* **47** *5–7m/1–8w* ? yet most distinct species *15u "fleurs|fertiles"/!!, 23–30m/w* action of pollen good – like Hildebrand's facts **49** *7–13m/13u "influence|annihilée", 24–25m/w* like my sweet pea case Ch. X *25–31m/26–31u*±, *31*→ **50** *1–3m/1u*✐ *"qu'un quart"/2w* Loevis *4–6m, 9–10m/9u "hybridité disjointe"* **51** *1–6w* He does not say the seed was separated, only other capsules

produced the two forms *19–23m* **53** *22–25m* **54** *16w* Sweet Pea *22–24m/!!!/18–24w*◆ Polyanthus & Cowslip one of grandchildren returned to pure Cowslip **58** *8–17m* **60** *29–31m* **93** *28–31m* **99** *25–30w/wb* He admits the L vulgaris grew near !! & yet advances the case as one of Reversion– He never counts seeds! Seeds were forgotten & other neglegences & never apparently protected from variation Careless experiments in every way.– **100** *12–14m, 25–29m/w* colours not blended **113** *8–22m* **126** *12–17m* **127** *3–6m/5u "pas | embryonée"* **131** *17–20m* **135** *20–31m* **136** *8–14m* **137** *9–11m, 13u "la | année"/13–14w* crossed with common none were peloric *22–24m/23u "cinq | égaux", 24–25m/u "alors | présence"* **141** *14–15u "l'hybridité | ovules"/w* confirmed **142** *8–11m/10u "un | ovaire", 17–19m, 21–23m, 24–25m, 27–29m* **143** *23–27m/23–25u "car | vertu"* **145** *3–8m* **146** *6–9m/6–7u "une | génération"* **147** *23–27m (Klotzsch)/23–25w* Reciprocal Hybrids like each other **148** *6u "intermédiaires", 7–9u "l'immense | espèces", 18u "c'est | tort", 19u "au | père"* **149** *11–12w* prepotent species *12–14u "dont | espèce", 24–26u "la | hybrides"* **150** *22–26m/21–28w/wb* If so this pollen of a hybrid placed on one of parents or on third species wd give widely different results from Hybrid fertilised by the same. **151** *1u*✍ *"deux essences", 10–16u±/10–11w* Pangenesis *19–35*→ **152** *1u "les hybrides", 13–18m, 20–23m, 25–28m* **153** *12–14m, 16–21m* **154** *19–23m, 28–31m* **155** *1–4m, 32–35m/32w* loevis close **161** *9–14m, 15–18m, 26–29m*

NETTER, Abraham *De l'intuition dans les découvertes et inventions; ses rapports avec le positivisme et le Darwinisme* Strasbourg; Trenttel & Wurtz; 1879 [Down]

NEUMAYR, Melchior and PAUL, Carl Maria *Die Congerien- und paludinenschichten Slavoniens und deren Faunen* Wien; Alfred Hölder; 1875 [CUL, I]
cc, ch, ds, dv, gd, geo, gr, ig, oo, sp, sy, t, ti, tm, v

NB1 All marked very important on direct effect of conditions–
NB2 p57
57 *25–28m/w* like Hyatt *30–33m* **84** *40m* **90** *1–3m/w* gradual slow changes *45–55m/45u "viele | Typen"/48–50u "Viviparen | müssen"/53–55u±* **91** *36m (Lyell)* **93** *26–28m/29m/17–35w* Is vehement that it is arguing in a vicious circle to call all forms which can be connected by gradations the same species [true but useful or necessary for systematic work.] **95** *22–27m/23–25u "die | sind", 27–32m/30–32u "dass | Gestalten", 36m, 41–45m* **97** *26–31m/28u "Auftreten | Formenreihen"/30u "variiren | Abänderung", 33w* 3 species of new genus *34–39z/39w* 3 species *43m* **98** *9u "Reihen", 11–12u "während | slavonischen", 13u "mehrfach Ammoneen", 17u "sondern | Uebergänge", 20–21u "dass | feinsten", 31–40m/31–35w* each form in a successive bed. *52–54m/53–54u*↔ **99** *1m, 20u "auf | X", 19–22m/w* Table of Descent *47–48u*↔, *49–51m/50–52u "eine | Hauptverbreitung"* **100** *3–4u "während | auftreten", 4–12w* Looks as if periods of rapid variation & then of rest, but denies. *25–27w* modification goes on in same district. *31u "kein", 32u "innerhalb | stattfindet", 33–34u "Auftreten | Mutationen", 33–40w* a row of forms divides into 2 rows only in separate districts *41–46m/42m/45w* an exception **101** *wt* just what I have said *3–5m, 18–19u "von | hin", 20u "die | Variationen", 21u "erhalten sich", 24–27m/27u "die | nicht", 30m, 32–33m/33u "so | Auge", 35–38m, 40–41u "Verdickung | Sculptur"* **102** *2u "Verdickung | Sculptur"/3u "Unionen"/4u "Dickschaligkin"/1–5w* in a distinct genus, (showing effects of conditions. *7–10m/8–9u*↔*/12u "Einwirkung | suchen"/8–13w* in a different district another series of forms. *18–24m/14–22w* Thickening of shell in small pond to be due to water becoming more fresh. *30–34m/30–32u*↔, *36–37u "Nur | angenommen", 46m* **103** *19–23m, 40u "abgeänderten | wird", 41u "constatirt | können"* **104** *1u "innerhalb | ihrer", 4u "von | bekannt", 16–17u "dass | Reihen", 18–22m/w* fail on sea because we do not have whole area *33m, 42–45m/43u "Mealnopsis | nachgewiesen"/45u "Jahrb. | Heft"* **105** *1m, 19–20u "betrachten | Formenkreise", 20–21u "wie | Verbindung", 50m, 51–52m/51–55w* same kind of variation in several distinct forms **106** *1–3m/1–5w* same var. at very distinct periods

NEUMAYR, Melchior *Zur Kenntnis der Fauna des untersten Lias in den Nordalpen* Wien; J.C. Fischer; 1879 [CUL, I]
fo, geo

NB 45 Parallelism of Ammonites
℘
45 *8–18m*

NEUMEISTER, Gottlob *Das Ganze der Taubenzucht* Weimar; B.F. Voigt; 1837 [CUL]
beh, cs, f, he, oo, ta, tm, v, y

NB 4,6
SB ❑β
Neumeister✎

17 Dovecots do not like Fancy Pigeons
18 Crosses very fruitful
21 In young white bars nearly red & true Q character remains only till 3 or 4 years 24 Nearly parallel case
29 odd heredetariness in Trumpeter
31 Hinkel flight-feathers doubts Q
Pl9 Never seen yellow or red Fantail

title page *wt* A working man enquired all himself; Laugher ✍ Finnikin Spanish rust not mentioned ✏ Frill-back **i** *11–12m* **4** *9w* 20–24 years *8–10w* These fancy races 6–8 years age.– *12u "Holländerknopftaube"* **17** *wt* 17 *5u/wτ, 10u/wτ, 13u "Gesellschaft | zahnen"/12–14w* Dovecots do not like fancy pigeons **18** *8–9u "Es | Tauben"/6–9w* House Pigeons crossed with Fancy very fruitful **21** *13u "schwarz"/11–16w* correspondence in age *18u "gewöhnlich"/19–20u "der | schön"/[...]/18–22w* in young the white bars are rust-red & perfect character remains only till 3d or 4th year old **22** *12w* shell-shaped cap *13m/14m "Muschelhauben"/13–23w* cross at back of Head top of head white upper & lower Mandible different colours **23** *11–12w* ♣ This seems rather different *12u "etwas grösser", 13u "Brust | Oberrücken", 14–15w* Head smooth white tail flight feathers & feathers on feet white *17u/wτ 19–24w* These have strongest shell-shaped caps of all Breeds– runs down half neck **24** *5–8w* In young the white feathers are first edged with colour *11w* Spot **25** *1u "wegen | kurzen", 5u "Schnabel | als"/w* I see this is mine **26** *7–11w* I have now written descriptions on plates **27** *10m/w* Blue *23w* (a) *wb* (a) called Riedel Polish Pigeon **29** *2wτ, 2–9w* Mr Gilbert will back one of his to travel for 1/4 of hour *7u "einen | Schnippe", 16–17m/u "doch | trommeln"/*Q✍, *17–18u "Ohne | tauben", 18u "noch | gut", 19u "Altenburgische"* **30** *24u±* **31** *1–2m/1u "Schwungfender | doppelte", 4u/wτ*
⟨all plates.w (descriptions of varieties of pigeons and doves)⟩

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NEWTON, Alfred *Zoology* London; Society for promoting Christian knowledge; 1874 [Down, I]

NICHOLSON, Edward *An elementary treatise of ophiology* Madras; Higginbotham; 1874 [Down, I]
ig

NB O/
10 Gradation
10 *1–22m* **29** *22–25m*

NIEMEYER, Felix von *A textbook of practical medicine* revised edn, vol. 1; London; H.K. Lewis; 1871 [Down, FD]

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h, oo, t

NB I a universal law that strong tribes extirpate weaker; 104; 248
I *26–30m* **104** *2–9m/w* identity of man under similar conditions **248** *29–31m (Lovén)*

NITZCH, Christian L. *Pterylography* ed. Philip Lutley Sclater; London; The Ray Society; 1867 [Down]
no, tm, y

NB 39♦; 110♦; 16♦; 13 numbers of feathers; 14 young birds
13 *40–43m* **14** *8–12m*

NOGUEIRA, A.F. *A raça negra sob o ponto de vista da civilisação da Africa* Lisboa; Minerva; 1880 [Linnean Society of London, I]

title page *wt* as Mark *wb* 233

NOIRÉ, Ludwig *Der Ursprung der Sprache* Mainz; Victor von Zabern; 1877 [Down, I] ℘

NOIRÉ, Ludwig *Die Welt als Entwickelung des Geistes* Leipzig; Beit; 1874 [Down, I]

title page *wt* Prof. of Mainz

NOIRÉ, Ludwig *Das Werkzeug* Mainz; Diemer; 1880 [Down] ℘

NORDENSKIÖLD, Nils Adolf Erik *The voyage of the Vega round Asia and Europe* London; Macmillan & Co.; 1881 [Down]
ss

NB 97 Sexual Selection, dogs
97 *11–23m/11–21[...]*

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ad, br, cc, ch, ds, gd, mhp, no, oo, or, sp, sy, t, ta, tm, v, wd

SB1 18; 20; 34; 41; 43; 48; 51; 54; 55; 70♦; 70; 72 to 84; 107; 228 variation; 243; 244 taste &c &c varieties besides common peculiarities resisting wind another quality early fruits – age at which it produces; 254; 268; 327; 362; 397; 401; 429; 436; It is striking how many varieties there are, & how some seem to do better in one province than another
SB2 266 Journal Geolog. Soc♦
SB3 ❑β
42, 44, 48 of immense numbers sown, rarely new variety produced.
70 on classification of grapes – 74 p.80 wd like descent if possible p107 is possible (p244 Sub-families)
71 same grape has round & oval berries Q
78 Simon (like Van Mons) cannot think all came from one Parentage (Ch. 2)
227 grape like dry, but apt to rot when ripe
p243 slow to ♣ breed but ripens fruit early; fruit resists long-continued humidity; attracts wasps✍♦✍; p254 apt to be broken off bunch – resisting wind & 254 More attacked by insects 362 Early excited by April sun ✍ & so killed by Frost
243 & 254 & 362
327 a Grape more than. 600 years old.–
397 see✍ leaves turning yellow when fruit ripe
429 Pulp adheres slightly to seed 436 in other case turning red, at lower part of shoot.–
(All Quoted)

18 *4–8m (Dussieux)* **19** *17–20m, 30m* **20** *1–3m* **34** *1–2m* **41** *29–30→, wb* very few & yet thousands sown; applicable to domestic birds **43** *23–30m (D. Simon)* **44** *3–5m, 22–30m (Rozier)* **48** *4–9m* **51** *19–24m* **53** *12–13w*♦ 600 to 800 **54** *5u "ait | huit", 6u "un | cultivées"* **55** *1–3m* **70** *1–3m/wt/1–7w* Wants to make classification natural *4–9m, 11–14m, 16–18m, 19–24m* **71** *15–18m/16–17u↔, 26–29m/*Q✍ **72** *3–6m* **74** *16–19m* **75** *12–14m* **76** *13–19m* **78** *17–25m/w* like Van Mons on peas **79** *20–21m/20u "où | trouver"/21u "sur | la"* **80** *24–25m* **84** *12–18m* **85** *22–24m*♦ **107** *2–3m "ce | toujours", 10–22m, 21–25m* **227** ⇑*2–1m* **228** *1–3m←, 2–4m* **243** *20–21m* **244** *11–16m/13–14w* Sub-family **254** *18–19m/19u "cet | fragilité", 28u "passeriller | guêpes", 29u "cette espèce"/w* raisins? **268** *1–2m, 8–11m* **327** *2u "plus | six", 8–11m* **362** *26–29m* **397** *23–25m, 25–27m* **401** *5–10m* **429** *7–10m* **436** *4–9m*

UN OFFICIER DU ROI *Voyage à l'isle de France* Neuchâtel; Société typographique; 1773 [Down, pre-B]

NB 8 use of broom for cordage – Pliny **8** *last paragraph.x* **170** *1–5m* **173** *1–2m, 4–7m, 9–16m*

OGLE, John William *The Harveian oration, 1880* London; 1881 [Down]

OKEN, Lorenz *Elements of physiophilosophy* trans. Alfred Tulk; London; The Ray Society; 1847 [Down] ℘

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phy

NB 31; 154 bears on concretion○ in worms
31 *14–19m* **154** *29–33m* **155** *1–9m*

ORDINAIRE, C.N. *Histoire naturelle des volcans* Paris; Levrault; 1802 [Down, pre-B]
℘

ORMATHWAITE, John Benn Walsh *Astronomy and geology compared* London; John Murray; 1872 [Down]

NB O/

ORTON, James *The Andes and the Amazon* New York; Harper & Brothers; 1870 [CUL]
beh, br, che, gd, no, phy

NB 1/4 of Plants near Quito are Compositae colour of flora due to chemical rays 103
107 Geese not breeding; 283♦
103 *3–6m, 20–24m (Herschel)* **107** *21–23m* **283** *1–5m*♦

ORTON, James *The Andes and the Amazon* 3rd edn; New York; Harper & Brothers; 1876 [Down]
ex, fo

NB 154 <u>Extinct</u> deer fossil in Amazonia
154 *15–17m/15u "deer"*

OSBORNE, J. *The horsebreeder's handbook* London; Benjamin Clegg; 1881 [Down, I]

x *42–44m*

OTLEY, Joseph *A concise description of the English lakes* 4th edn; Keswick; 1830 [CUL.1900]

NF ⟨*prob CD*⟩ Sept 24 1830 Kendal

OVINGTON, John *A voyage to Suratt* London; Jacob Tonson; 1696 [CUL, pre-B]
gr, is

NB 69 72✍◆
69 Floating Isd 100ft long & broad covered with grass about 4 leagues at sea –
69 *12–14w*✍ See p.64. probably 4 leagues from shore *14–18m* **72** *6–15m* **448** *1–3m*

OWEN, David Dale *Report of a geological survey of Wisconsin, Iowa and Minnesota* 1 vol. with vol. of illustrations; Philadelphia; Lippincott, Grambo & Co.; 1852 [Department of Earth Sciences Library, I by J.D. Dana]
fo, ig, ir, sp, sy, ti

NB Think what wd classification be if only Eocene fossils had been unearthed○
p.50 Fossil ● Lingula
p.198 Nebraska – some of Leidy genera very intermediate – *
p.571 do. Nebraska intermediate mammals

50 *14–19m* **198** *5–17m* **199** *2m/u "eocene", ⇑1→* **200** *8–16m* **571** *⇑3–1m*

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beh

NB 52; 40 an halln.; 51; 134 judg<u>e</u>mt 179 do ⟨*some editorial marks in text*⟩

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ad, af, beh, ch, em, ex, fo, h, he, hl, ig, phy, r, rd, ss, sy, t, ta, tm, v, y

vol. 1 NB 168; 170; 179
SB1 Vol I Owen
331 Eyes of Fishes in Lancelet & some other as simple as in the lowest crania○; 342◆ range of gradation great in F. & R.; vol I; 354 Electric organs; 358 similar action with Muscles
xxxvi; 254; 345; 378; 393; 401; 409; 486,7; 492,7; 533 Wollfian glands Man; 543 551 567 – Regrowth for Chapter on Inheritance –; 576; 588; 589 sexual selection; 609; 611; 612; 615 sexual sel.; 616; 640
SB2 ❑β ➾ ⟨*not CD*⟩
Owens Anatomy of Vertebrates Vol I 1866
p.xxxii Rudimentary & nascent organs. Cases of fins becoming rudimentary in old age.
254 Gradation between homocercle & heterocercle tail – also in embryos.
345 On air bladder in Colitis aiding organ of hearing
378 Six modifications of structures of teeth in fishes, 2 sometimes in same fish or each in same tooth.
393 On egg feeding serpent with mouth without teeth but with vertebrae acting as teeth in the gullet.
401 Dicynodonts approach mammals in having growing tusks, besides as in other reptiles being implanted in a socket.
409 In an extinct crocodile the teeth can be divided into canines, incisors & molars.
486 on the persistence of an embryonic structure of the branchiae in certain low fishes.
487 on an accessory breathing organ in the climbing perch.
492 Structure of air bladder in fishes. 497 ditto.
551 Drawing of the female Surinam toad with eggs on back
588, 576 Gradation in reproductive organs of fishes
609 Embryonic characters of fishes permanent in sharks.
611 Metamorphoses in fishes.
640 On transitory tooth in young sharks & lizards for cutting through egg

xxxii *10–18m (Tiedemann and Vrolik), 19–25m* **xxxiii** *3–6m, 6–10m* **xxxv** *7–15m, 21–27m* **xxxvi** *1–7m, 27–31m* **xxxvii** *14u "selective"* **9** *12m, 26m* **12** *28m* **14** *19m* **15** *24m* **166** *24–25m* **167** *22–24m* **168** *23–27m* **179** *16–19m, fig.112.m* **254** *8–25m* **331** *24–29m* **342** *10–14m* **345** *19–25m* **346** *1–8m* **354** *1–6m, 19–23m* **355** *29–36m* **356** *25–32m* **358** *31–42m* **378** *12–27m, 23–27m* **393** *17–33m* **400** *38–41m* **401** *1–5m*

OWEN, VERTEBRATES
409 *7–12m* **486** *17–32m* **487** *1–6m/fig.325.m* **492** *35–43m/fig.327.m* **493** *1–7m, 25–30m, 34–38m* **497** *13–18m (Borelli)* **533** *8–13m* **543** *7–14m* **551** *fig.367.m* **567** *1–12m/11u "Anourous", 26–29m (Van der Hoeven)* **568** *10–12m* **570** *39–42m* **576** *4–16m* **588** *19–29m* **599** *37–43m* **609** *5–9m* **611** *32–40m* **612** *9–16m, 20–34m* **615** *3–5m, 12–15m, 17–19m, 21–24m, 23–24u "submaxillary glands"* **616** *24–38m* **617** *3–6m* **640** *6–13m* **646** *54–56m*

vol. 2 SB ◆
p.12✍ affinities of Birds – greatly Modified Birds their affinities
read as far as p.14; 517◆ Tail of monkeys◆; 551 & 552◆ Apes anthropomorphism Man; 544 & 560 to end Man
All used
258◆ Sexual diffrn in Beak
12 *23–27m* **13** *10–16m*
℘
p.258 *27–34m* **517** *27–36m* **520** *33–35m, 36–38m* **551** *27–29m/29u "mastoid processes", 31u "the | the", 32u "auditory process", 33–43m/37u "posterior | internal", 40u "ectopterygoid | the"* **552** *1–3m, 13–17m* **553** *8–14m/10u "great toe"/11–12u "perhaps adaptive"/w* adaptive **564** *4–15m* **506** *16–21m*

vol. 3 NB ◆
Law of Inheritance 619 Hair in foetus; 628; 624 & 630 Man; 632 & 634 to 638 sexual selection; 641; 675 Rudiment; 676; 685 Man; 687; 701 Sexual; 706; 739 Law of Inheritance; 767; 791; 746 Polygamy; 770 Gradation in Marsupial pouch; 791 Gradation in characters of Horse; Man external 236 & 244 Ear; see about external ears
SB ⟨*a fragment*⟩
323; 325◆; 336 gradation of characters; 347 ✍ affinities of Hippopotamus shown by Milk Teeth; 348◆ Relation of Horns & Canines ◆; 415 Kangaroo Ruminating; over◆
vi *7w* to 219 read **viii** *7w* read *17w* read *23w* read **ix** *19w* read *39w* read **x** *7w* read

℘
54 *17–20m* **60** *18–23m* **63** *21–25m* **71** *24–29m* **135** *31–37m* **228** *1–2m/fig.171.m* **229** *2–6m* **236** *16–29m/22u "only | and"/23u "in | are"* **243** *38–42m* **244** *fig.189.w*● **245** *8–11m, 12–14m (Lamarck)* **260** *5u "third | lid", 39–42m* **261** *2u "nictitating | developed", 5–9m, 8u "Quadrumana | Man"* **279** *23–24u "or | with", 26–30m* **283** *14–17m/14u "160 | 281", 20–22m, 43m* **284** *15–21m* **285** *fig.231.w* p.331 **315** *15–20m* **317** *3–7m* **318** *wt* Chimpanzee **320** *31–35m* **321** *14–18m* **323** *10–13m/10–16"..."/13–15m*◆*/14c/15c/ 16c¢* **325** *9–10m, 21–23m* **331** *30–31m* **336** *2–7m* **347** *16–21m* **348** *38–41m* **349** *5–6m, 11–13m* **415** *11–18m* **416** *26–28m* **417** *fig.315.m* **433** *36–38m/38u "terminal | short"* **434** *1–5m* **441** *36–40m, fig.345.m, 39u "follicular glands"* **585** *35–37m* **595** *7u↔/6–8m/w* & so is the Porcupine **598** *1–3m/w* Lemuridae *34–35m* **600** *10–11m/11u "alone | sing", 12u "Laryngeal | Orang-utan", 13–18m/17u "sacculi"/18u "adult males"* **601** *4u♠, 7–10m* **603** *18–19m* **619** *6–9m, 28–30m, 32–36m, wb* J. Müller Archiv fur Physioly 1837 **624** *20–22m, 31–33m* **626** *12–14m* **627** *wt* Law of Inheritance *1u/a "Commencing | 1855", wt* when about 5 or 6 months old *6–8w* ie from Jan or Feb 1855 **628** *40–42m/40u "in | both"* **629** *4u "in year", 20–22m/21u "20 points", 24u "yearling fawn", 40u "seventh"* **630** *1–4m/1u "condition | snags", 11–13m/12u "swelling | throat"* **631** *3–12m, 26–31m, 42–44m/w* not so sexual in char see Mullers letter **632** *18–20m, 31–33m* **633** *18u "pairs", 19u "in pairs", 23u "not gregarious", 33u "in pairs", 35u "not gregarious", 43u "in pairs", 45u "in pairs", 46u "ib."* **634** *3u "in pairs", 12u "in pairs", 16u "in pairs", 22–26m, 31–32m, 37–42m* **635** *17–21m/w* sexual? **637** *6–12m, 13–30w* Seems not generally sexual **638** *35–36u↔, 39–42m* **639** *19–23m* **640** *13–15m* **641** *8–10m, 16–17m* **675** *fig.532.m* **676** *16–23m* **685** *38–43m* **686** *3–7m/4u "two uteri"* **687** *35–41m* **701** *18–21m/21u "Lemuridae", 23u "vaginal | cavity", 24u "Insectivora"* **703** *6–8m/7u "not | cornua", 21–23m/22u "last | cornua"* **706** *3–5m* **739** *33–37m/w* Cattle nearly equal **746** *3–9m* **763** *1–3m/2u "active | rut", 5–7m* **767** *14–23m, 25–27m* **770** *32–39m/33–34?* **771** *9–13m, fig.605.m* **791** *16–35m, 39–40m* **792** *19–24m* **793** *2–4m* **796** *13–19m* **798** *37–42w* Say, as far as I mention – damn this *41–48m* **799** *3a/c¢/w* Man *9–11m (Darwin)* **800** *18–22!!/20u "my basis", 26–30m* **807** *10–13m*
℘

OWEN, Richard *Description of the skeleton of an extinct gigantic sloth (Mylodon)* London; John Van Voorst; 1842 [CUL, I]
af, ch, em, fo, ig, rd, sp, sy, tm

NB 83; 97 to 106; 137; 154; 155; 162; 165; 166; 170
SB ❑β
100 striking gradations in abortion p.101–106
162 Sloth now seems to be a remnant of large class – Sloth most anomalous if looked at by itself
165 Modifications of teeth in this order extreme – indicating low ebb & flickering of development
166 approach Birds in some respects

83 *28–31m* **97** *1–4m, 4–6m* **98** *1–2m/1u "atrophy"/1–2w* another term **99** *9–10m* **100** *11–15m, 23–26m/w* entirely aborted **101** *20u "fifth"/20–22m/20–25w* 5th here present absent in Unau. What a gradation of abortion! **106** *18–23m* **137** *17–18m/17u "The| structure", 31–33m* **154** *32–34m* **155** *15–19m* **162** *30–31m* **163** *1–4m (Cuvier, Blainville), 10–12m, 15–17m* **164** *14–18m* **165** *16–19m, 20–21m* **166** *1–6m, 7–10m, 11–14m, 19–20m* **167** *3–5m* **170** *19–25w* Is Glyptodon in the Phyllophagous group?

OWEN, Richard *A history of British fossil mammals and birds* London; John Van Voorst; 1846 [CUL, S]
af, beh, ch, ds, em, ex, fo, gd, geo, ig, ir, is, mg, no, or, rd, sp, sx, sy, t, ti, tm, v, wd, y

NB <u>Owen – Queries?</u>
♦ p.81.–; 83,7; 99; p212 – Reference to Corsica cavern
p441 & 432 How far are ♣ Anoplotherium & Palaeotherium distinct; are they are as distinct as are at present the unequal & equal-toed Pach-Rum:– or rather were the two Eocene groups of equal and unequal toed animals as distinct, as present 2 groups –
p245 width of tusks 160 sp.
SB1 <u>All Introduction</u>
It is important S. America having Mammals in Eocene Toxodon & Rio Negro & Miocene Mastodon
Most of cases animals also found in Strata This looks as if record not so imperfect
p.151 How few skeletons even any <u>number</u> of perfect Crania! though enough to make out <u>species</u>
p.7,8,10; 20; 25; 31; 49; 53,5,6; 61,2,7; 74,6; 78; 30,3,6 to 91; 107,9,12; 114,7; 121; 129; 130,1,3,5; 171,3; 192; 197; 202,8; 211; 213,4,5; 220; 236; 243,4; 293,5,6; 300; 311; 341; 334, 342; 346,50,354; 359; 372, 381,5; 388,90,92,97; 413,14,18; 427,29,30,32; 436–441; Over
⟨over⟩
✍ <u>Owen</u> B. Blanca. Toxodon plateum
♦ p.xxi; xxiv; p.28; How far can close species be distinguished by skeletons for instance American & English Beaver
How isolated would the elephant be without fossils ♦ How is pachydermata & Ruminanta fall into 2 new classes not this
Mastodon & Dinotherium to connect it with Tapir? or Palaeotherium
p.442; p.449; p.451,2,4; p.458; p437,8; 473,8; 483; 488; 493,4; 499,500; 505,8; 510; 512; 514; 520; 526; 540,2; 546,8; 557

SB2 ❒ℜ *⟨2 sheets⟩*
xxi Dinotherium & narrow t. Mastodon diminish distance between Lophiodon & Elelphant
xxxvii – On relation of fossil to recent mammals of same districts to xliii no fossil Mammal in N. Zealand – xliv
✍ except seal – Huxley
87. variability in rudimentary premolar in Ursus ♣ spelaeus
111 Badger oldest existing mammal Red Crag
133;2 varieties of Dog ♣ <u>doubtful case</u> Q
173. Domestic cat. not from F. maniculata
197. On the animals which have existed since Peat cd form in Britain.–
212 Rabbit Bones in Corsica
214 Lagomys do & in Britain N.B variability of Tusks of male Elephant in India is a variable sexual character
261 Southern range of Mammoth in America. p359 of woolly Rhinoceros in Tuscany
296 Mastodon older than Elephas & intermediate in structure of teeth
334, 342 affinity shown by rudimentary organ
⟨over⟩ <u>2</u>
394 Elasmotherium forms link between Horse & Rhinoceros, especially some fossil Horses.
413 Fossil genera between Sus & Hippopotamus
432 Anophotherium, remarks on rudimentary teeth in Ruminants; young of latter approach anophotherium.– (N.B. A form whilst forming would not spread?♦) p.436
540 on Rudimentary teeth in Whales, & embryonic character in Ruminants
514 Bos longiform parent of British wild cattle

title page *wb*✍ 1846 **xiv** *31–33m* **xv** *35–36m* **xvii** *21–24m* **xx** *16–19m, 29–31m* **xxi** *1–3m, 25–26m, 30–31m* **xxii** *1–3m, 10–11m* **xxiii** *24–33m* **xxiv** *1m/w*♦ at same time *20–21m, 29m* **xxv** *1–8m, 16–19m* **xxvi** *17–20m* **xxviii** *12–16w*♦ about Tiger swimming a few miles **xxxi** *25–27m* **xxxii** *7–9m, 21–27m* **xxxiii** *19–20m (Nilsson)/w* see Description to understand fully *wb* altogether 2. Bos Primigenius & longiform 2. Bisons priscus & minor **xxxiv** *25–30m, 32–33m* **xxxv** *33m* **xxxvi** *1–5m, 6–10m* **xxxvii** *1–2m, 5w* Hippopotamus *7–11m, 14–19m, 27–31m* **xxxviii** *9–11m, 13–17m, 18–19m* **xxxix** *10–14m, 15–16m, 31–32m* **xl** *11–12m* **xlii** *9–13m* **xliii** *4–6m, 17–19m* **xliv** *6–8w* (see my Journal) *10–13m, 23–26m* **xlv**

OWEN, FOSSIL MAMMALS

3–8m **7** *11–13m* **8** *8m/u, 21–23m* **9** *18m, 20–24m, 23m* **10** *5–6m (Lyell) 20 21–22m* **25** *9–11m, 13u♠ "gigantic Beavers", 14u "water-mole", 17–19m, 22m* **27** *1–3m/3u* **28** *21–22m, 25–28m* **31** *33m* **49** *5–8m* **52** *24–26m (Cuvier)* **53** *13–16m, 24–28m* **54** *1–4m, 31–34m* **55** *1–6m, 27–28m (Cuvier)* **56** *9–11m, 31–34m* **61** *9–12m* **62** *3–6m* **67** *29–33m* **69** *15–16m, 27–29m* **74** *3–6m* **76** *6–8m, 9–14m (Cuvier)* **78** *10–14m, 28–33m, wb* Philippi shows in shells, that decrease in size does not go with increasing rarity **79** *1–3m♦, 5–6m♦* **80** *8–10m, 11–14m* **81** *3–4m/4u "very | exceptions", 25–27m/26–27u "from | character"* **83** *24–25u "in | obliterated"* **86** *23–25m* **87** *18–20m, 21–22m/w* ∴ direction variable? **88** *20–23w* firm species are <u>hard</u> to settle from Bones **91** *9–17m* **99** *5–7m/5–6u "the | destructive"* **107** *1–3m, 27–34m* **109** *14–17m* **111** *22–24m* **112** *16–21m* **114** *10–13m, 15–16m* **116** *4–5*Q **117** *18–19m/u "the | Weasel"* **121** *21–22m, 33–34m* **126** *4–5m* **127** *27–30m/29u "Wolf | Dog"* **128** *28–31m* **129** *12–21m* **130** *2m, 5–12m, 19–21m (Cuvier, Daubenton)* **131** *4–7m, 19–22m, 24–30m, 32–33m* **133** *6–7m/6u "two | notably", 11–13m (Blainville), 21–22m/! (Schmerling), 22u "recent", 23u "Human remains"* **135** *2–4m/! (Bell), 30–32m* **171** *9–15m* **173** *12–15m, 19–20m, 22–23m (de Blainville)* **178** *12–19m* **192** *7–9m* **197** *11–26m* **202** *8–16m (Lyell)* **208** *12–14m (Bell)* **211** *16–21m, 24–26m* **212** *15–16m/u "osseus | Corsica"/w* See to this as change of surface **213** *15–17m, 21–24m* **214** *8–10m, 14–15m* **215** *27–28m* **216** *4–7m, 13–15m* **220** *1–4m* **232** *3–8m* **236** *1–5m* **243** *31–33m* **244** *33m* **245** *24u "hundred | sixty"* **261** *15–17m* **293** *16–21m* **295** *17–22m* **296** *2–5m, 27–31m* **300** *10–11m, 31–32m* **311** *10–13m, 15–19m* **334** *1–12m, 9–13m (Cuvier)/w* affinity from abortive organs **341** *6–13m, 36–38m* **342** *20–26m, 33–35m (Pallas)* **346** *1–2m/2u "Caldy Island"* **350** *13–19m* **354** *12–17m (Pallas)/12–22w* England & N. America good case of range, interrupted, with Siberia between **359** *26u♠/23–26m/w* This is the cold animal *32m* **372** *8–13m* **381** *4–7m* **384** *23–25m, 28m* **385** *9–10m, 14m, 23–25m (H. von Meyer)* **388** *5–6m* **390** *29–30m, 33m* **391** *9–15m* **392** *10–12m, 21–22m (von Meyer)* **393** *1–4m, 22–26m, 27–33m* **394** *1–5m, 7–9m* **397** *1–3m, 14–16m, 19–21m, 29–33m/w* 4 species in England *wb* ? whether Drift & Pliocene & caverns will not turn out very different periods **413** *13–16m, 23m* **414** *25m/w* Eocene **415** *1–3m* **418** *14m/14–17w* X analogical or real *18–22nm 25–28m* **427** *11–12m, 16m, 20m* **429** *2–4m, 20–22m* **430** *12–15m* **432** *12–13m/7–16w* Reference to Lamarcks views *16–17m/!/u "or rudimentary", 19–20m, wb* Owen says young of present Ruminants in not having horns & rudimental teeth approach Anoplotherium **433** *5–12m, 31m (Goodsir)* **435** *17–20m* **436** *27–30m, 31–34m* **441** *wt/1–18w* Did ruminants then exist in some other quarter – *1–3m, 4–5m, 9–10m/10u "for | Ruminant", 15–18m/18u "young Musk-deer"* **442** *26–28m* **443** *1–8m* **449** *32–34m* **451** *6–8m* **452** *4–5m, 13–14m, 18–19m, 29–30m/29u "The | both"* **453** *32m* **454** *7–10m, 26–29m* **458** *28–29m/28u* **467** *19–25m* **468** *3–7m* **473** *3–9m* **478** *8–10m, 11–14m, 18–20m, 23–28m, 29–32m* **483** *25–29m* **488** *9–13m, 19–20m* **490** *2–4m, 8–10m/9u♠/10u♠, 14–15m, 19–20m* **493** *24–30m* **494** *28–31m* **495** *6–10m, 19–21m* **496** *3–9m, 17–19m* **497** *23x, wb* This seems whole evidence of Bison minor **499** *21–23m/w* now extinct? **500** *12–20m, 31–33m (Bell)/w* V. p.510 **505** *2–4m* **508** *18–20m* **509** *wt* Nillson (V. Annals 1849 p.350) makes another doubtful species B. frontosus *1–2m (von Meyer) 2–5m (Cuvier) 3x✎, 7–10m, 19–22m/21x✎/21–22u "primitive | Bos", 31–32m/32u "species"* **510** *wt/1–29w* NB The Rhinoceros, Elephant Hippotamus (Horse?) Bos primigenius & Bison priscus all having had such immense ranges; is opposed to the cattle of different parts of Europe being descended from several species. *1u "or variety", 10–13m, 11–13m, 27–31m* **511** *6–11m (Ball), 30–32m* **512** *33–35m, 36–39m/38u "have | Bos"* **513** *1–2m/x✎* **514** *7–14m* **515** *6–9m, 18–22m* **520** *14–16!* **526** *10–11m* **540** *25–33m* **541** *1–8m, 26–27m, 32u "eocene"/31–33m/w♦* only probable age → **542** *5–7m* **546** *3–8m (Cuvier, Mantell)* **548** *29–33m/31u "still | any"/!* **557** *4–5m/u "referred | approximated", 21–25m*

OWEN, Richard *Lectures on the comparative anatomy and physiology of the invertebrate animals* 2nd edn; London; Longman, Brown, Green & Longman; 1855 [CUL, S]
ad, af, beh, br, ci, cs, em, ex, fg, gd, hl, ig, oo, phy, sl, sp, sx, sy, t, ti, tm, v

SB1 91; 110; 125; 130; 152; 153; 157 to 162; 179; 183; 187; 194; 208; 211; 212; 220; 223; 236; 239; 254; 264; 267; 268; 297; 301; 324; 334; 339; 342; 346; 354; 399; 405; 406; 425; 437; 439; 443; 455; 459; 467; 476; 479; 498; 508; 521; 525; 527; 528; 537; 543; 560; 563; 565; 566; 576; 589; 603; 615; 638; 642; 643 to end
SB2 ❑β
86 Union observed in Planariae
125 Hydra sometimes male, sometimes female, sometimes both <u>Q</u> variable by double organs p.137 <u>Q</u>✍
151 Spermatozoa escaping from Bryozoa Ch.3✍

161 My notion of relation of Medusae & Hydrozoons
179 On dioicous Acalephae
213 Synapta only hermaphrodite Echinoderm
221 Parasite of Synapta, wd seem impossible to cross
239 On Homology of Tracheae (?) Q✍
256 Earth worm & Leech unite
264 Great diversity in having or not metamorphosis in Annelids
268 346 In low organized classes, there is extreme gradation in forms – Perhaps more extinction in lower than in higher forms
297 Thinks Larvae typical of Epizoa & Cirripedes!
425 In all insects the 1st segment is quickly modified & most modified
439 Owen compares Embryo of Vertebrate, of independently living to larva
443 Arachnids a short special branch, beginning very low
455 Spiders with both pulmonary sacks & Tracheae
459 Hermaphrodite Acarus 467 do
477 Solitary Ascidians of distinct sexes, aggregate hermaphrodite
521 Lamellibranchs generally dioicous
527 Doubts locomotion in larval stage of Molluscs
539 Pteropods coitus reciprocal
543 Gastropods, before Lias have simple shell-mouths
560 In a few Gastropods pulmonary sack combined with Branchiae
565 Bulini make nest for eggs with leaves – is it water tight? in Coll. of Surgeons
567 Larvae of naked Mollusc Tritonia survived for 2 weeks in sea-water
577 Nautilus Pompilius & Spirula only representative of the vast assemblage of old Cephalopods – (single species in genus) Vide p.650 Classification
603 Belemnite combines characters now separated
638 No Metamorphosis in Cephalopods & I believe none in Spiders
643 Vegetative repetition
645 all organisms alike in very earliest stage – 647
648 Laws of embryological development

8 *6–9m, 10–17m* **29** *39–41m (Barry)* **38** *32–34m* **39** *32–34m, 33–34m* **42** *34–40m* **58** *12–17m* **69** *6m, 7–8m/7u "androgynous", 12–15m/14u "small orifice"/15u "pore|male", 22–24m* **86** *34–37m* **91** *34–37m/35u "dioecious generation"* **92** *40–42w ⟨renumbering of lines of text which are wrongly ordered⟩* **93** *1–6w ⟨renumbering continued⟩* 1, 6, 7, 8, 2, 3, 4, 5, 9 **110** *36–39m* **118** *27m* **125** *15–17m*/Q **130** *7–14m (Ehrenberg and Krohn)* **135** *22–25m* **137** *14–19m*/Q **150** *15–16m, 33–35m (Van Beneden)* **153** *16–19m/w* but others are dioecious **157** *14–21m* **159** *12–24m* **160** *14–19m, 23–25m* **161** *6–9m/8u "few analogous"/wt/1–22w* If some larvae of Beetle truly bred in this state we shd have then have parallel of Hydrozoa & Acalephae. If the male glow-worm had been like female then wd have been case. But all Acalephae– ought to have hydrozoa larvae, without the embryo be concealed in egg state i.e. either Hydrozoa or none.– p183 some have & p187 *40–42m* **162** *1–6m* **179** *11–13m, 17–18m* **182** *35–38m* **183** *5c "3"* 7 *7–12m* **184** *fig.w* The Medusa first produces an infusoria planula which turns into a polyp **187** *35–37m* **188** *1–3m* **191** *13–15z* **198** *1–6z* **199** *6u "starfishes", 8–12m* **208** *8–9m* **211** *38–40m* **212** *34–36m* **213** *1–3m, 7m* **216** *39–43m (J. Müller)* **217** *8–11m (von Baer)* **220** *29–33m (J. Müller)* **221** *11–16w* Mollusca parasite of Synapta *30–32m/w* seems impossible to intermarry *36–40m* **223** *15–25m, 27–31m* **236** *1–5m* **239** *24–34m/26–27*Q*/29u "lateral sacs"/33–34u*↔ **254** *37–40m* **255** *22–23m, 25w* worms couple *28–29m* **256** *18–19m, 30–31m* **264** *6–19m, 21–24m* **267** *21–28m* **268** *6–7m, 26–29m, fig.114.w* Extinction. **269** *14–15m* **283** *33–37m* **297** *1–2m/!/1u*↔*, 41–42m* **301** *37–39m* **324** *27–37m/w* Daphnia do their females or larvae undergo metamorphosis **325** *31–36m* **334** *1–4m* **339** *5–9w* not adapted to active life **342** *14–30m* **346** *7–11m/7–16w* retrograde development or rather in another line, less height.– *23–26m/26–27u "the|varied"/19–28w* because not really lowest, but retrograde developed **353** *5–6m* **354** *40–43m* **399** *10–13m, 32–34m* **405** *29–33m* **406** *17–21m/w* I wonder whether any○ selection **425** *5–9m* **437** *17–21m* **439** *15–17m/16u "the|structure", 37–41m* **443** *20–25m* **445** *36–41m (Simon)* **446** *5u*♠*, 8u "water-bear"* **447** *40–43m* **455** *23–29m* **459** *24a "Macrobiotus"/24u "is androgynous"/19u*♠*/19–22w* is acquatic p446 *23–26w* p.446 see fig. of.– **466** *41–43m* **467** *36a "Macrobiotus"* aquatic *37–38m/38u "hermaphrodite", 39w/wb* Inhabits follicles in skin – p.445 they swim in Pus– ∴ hardly land animals **476** *33–35m/34w*● **477** *37–38m (van Beneden)* **479** *7–10m (Milne Edwards)* **480** *19–23m* **481** *15–23m* **483** *31–32m (Krohn)* **498** *34–37m* **508** *13–19m/w* nearly terrestrial **521** *35–37m* **522** *26–28m (Krohn)* **523** *2–4m, 23–26m* **525** *27–31m, 29–32m* **527** *33–40m (Forbes), 42m* **528** *11–13m, 14–16m, 29–32m* **529** *19–23m, 36–38m* **537** *40–41m* **539** *31–33m* **541** *1–2m* **543** *22–25m* **560**

7m, 12–14m **563** *1–2m* **565** *8–10m* **566** *9–10m/w* how transported **567** *18w* Tritonia *19–20m, 41m* **568** *30–34m* **576** *24u "from | types", 35–37m* **577** *5–6m/6u♠/w* Dibranchial **589** *17–18m/18u "ink-gland"* **603** *11–17m* **605** *8–12m* **615** *1–2m* **638** *21–30m/21–24w* p.466 Q *34–38m* **641** *22–27m* **642** *1–6m, 34–37m* **643** *1–5m* **645** *21–24m, 30–36m* **646** *15–17m* **647** *11–14m, 27–35m* **648** *2–7m, 10–18m, 18–22m, 27–31m*

OWEN, Richard *On the nature of limbs* London; John Van Voorst; 1849 [CUL]
ad, af, ch, ds, em, fo, h, ig, rd, t, tm, ts, v

NB I look at Owens Archetypus as more than ideal, as a real representation as far as the most consummate skill & loftiest generalizations can represent the present forms of Vertebrata.– I follow him that there is a created archetype, the parent of its class
NB2 2; 9
SB ❑β
2 the primal pattern of all the modifications of a part
9 Man does not trammel himself in his inventions by any common type
10 Final causes not sole governing principle
14; 37
13 Capital comparison of hand of Mole, Bat & Fin
33 In Elk rudimentary hoofs of use in marshy ground
35 Abortion of one toe variable in Ourang
39 a desire to ascend to cause of Homologies
40 On Head of Human foetus formed of pieces for parturition not applicable? Chick
45 Horses legs & Lepidosiren good contrast if simplicity from abortion & original
45 Only rudiment of Pelvis in Whales – 78 rudimental limbs in Boa
82 Lepidosiren realises nearly ideal Archetype (see my remarks at end of Volume)
84 Some think falsely (I argue. that conformity of plan is opposed to idea of design.
86 Alludes in grandiloquent sentence to some law governing progression, guided by archetypal light – &c.–
99 Vertebrae of head & thorax first developed
103 on variability of coalesence of segments of vertebrae.–
115 Rudimental tail proportionally longer in embryo man, than subsequently.

2 *28–30m/28–29u "essentiality | form", 35u "primal pattern", 36u↔* **3** *16–18m/17u "special homology"* **8** *zb* **9** *33–36m* **10** *9–11m* **13** *1–3m, 22–25m, 33–35m* **14** *3–6m* **15** *1–2m* **30** *9–14m* **32** *19–23m* **33** *20–24m/21u "dangle | project"* **35** *6–8m/7–8u "commonly", 10u/w⊄* **36** *28–31m* **37** *27–36m* **39** *14–28m* **40** *6–11m, 24–26m* **45** *22u "lepidosiren"/9–23w* In all these cases the tibia & fibula shows that they are simple by abortion & it is rash to argue from. about original simplicity of limb. *23–24m/13–25w* <u>apparently</u> aboriginal simplicity. *31–35m/34u "rudiment" wb* The contrast between the 8 almost singly serial bones of Horses leg. (p8) & appendage of Lepidosiren good instance of ♣ rudimentary & primeval or transitory stage **49** *28–31m, 35m* **56** *10–14m/!/10u "return | it"/12–13u "development | point", 16–18m* **59** *17–18u "osseous fishes"/17–21w* What is relation in Sharks? **78** *21–29m* **79** *15–19m* **82** *33–35m* **84** *12–14m, 21–34m* **86** *7–9m, 12–17m* **89** *34–39m* **96** *39–40m* **97** *1–8m* **99** *29–36m* **103** *27–30m/?, 33–37m* **115** *6–10m*

OWEN, Richard *Palaeontology* Edinburgh; Adam & Charles Black; 1860 [CUL]
e, geo, ig, tm

NB 57 & 69 shows how important record is
70; 132; 145; 150; 152; 199 Enaliosaurians♦
SB ❐ℜ ⊷
57 & 69 & 70 shows how imperfect record of Mollusca is
132 gradation in ossification of first bones
145 generalised ancient member of Sturgeon Family
150 The History of Fishes indicates mutation rather than development – good remark –

57 *2–4m* **69** *30–33m* **70** *12–15m* **132** *16–19m/w* grades **145** *15–19m* **150** *16–22m, 31u "special piscine type"* **151** *10–14m* **152** *6–8m* **199** *9–21m*

OWEN, Richard *Palaeontology* 2nd edn; Edinburgh; Adam & Charles Black; 1861 [Down, S]

25 *9–14m, 24u♠, 27u♠* **27** *22–25m* **28** *5–6m* **30** *19–31m* **39** *9u♠* **54** *32c/w⊄* **55** *2u "long", 8–10m/9u "mid", 24u♠* **57** *1u "having | spires", 4u "deltidium", 11u "internal partitions"*
℘

OWEN, Richard *On parthenogenesis* London; John Van Voorst; 1849 [Botany School, I to Alexander Bain]

OWEN, Richard *On parthenogenesis* London; John Van Voorst; 1849 [CUL, I]
br, ci, em, fg, h, he, in, phy, sp, t, ti, v

NB ◆ 13; 25 metamorphosis of epizoic Crust
5, 6, 7, 8 Pangenesis
25–26 – Owen's Belief
64 do
75 Pangenesis – buds & ova alike
Remember that Metagenesis (generation or growth within) blends into Metamorphosis – any explanation for one must hold for other.–
SB1 ❒ℜ 13; 20; 25; 35; 53; 62; 64
To Owen's view, there appears to me ♣ 3 objections.– 1st the astounding diffusion of the spermatic force in many mosses &c which for centuries do not breed – 2d the vis medicatrix – nails produce over stump in Man's ♣ fingers, which facts blend into gemmation. 3d facts of buds &c partaking of character of old time, & not varying, whereas seeds go back & take new characters.= 4th (p26 – growth & gemmation are hardly distinguishable
SB2 ❑β
13 Larva of cirripede more typical of class than Mature Barnacle

title page *wb* 1849 **5** *27–35"..."/32–35m* **6** *8–9m/8u "individuality*|*spermatic"* **7** *26–28m* **8** *22–23m, 25u "legacy*|*virtue"* **9** *29–34m* **13** *4–8m* **20** *7–16m (J. Müller)* **24** *19–22m, 28–31m* **25** *14–17m, 21–24m/25–27m/"..."/23–27m/17–34w* He uses expression that it is Metamorphosis – growth within *36m/"...* **26** *1–5m, 6–10m/6...", 8–22w* all growth may be thus called parthenogenesis for metamorphosis gradates into metagenesis **35** *29–35m* **53** *5–11m* **62** *3–8m* **64** *3–7m* **75** *11–13m*

PACKARD, Alpheus Spring (the younger) *A guide to the study of insects* Salem; Essex Institute; 1868 [Down]
beh, sx, tm

NB1 124 On Cells of Bees
NB2 149; 177– Mutillariae females wingless, but in 2 species females winged; Habits of Ants
177 *28–32m* **181** *10m (Huxley, Latreille, Kirby, Spence)*

PACKARD, Alpheus Spring (the younger) *Insects injurious to forest and shade trees* Washington; Government printing office; 1881 [Down]

PAGE, David *Man, where, whence and whither* Edinburgh; Edmonton & Douglas; 1867 [CUL]
beh, cc, ch, ex, geo, gr, h

NB ◆ Man; 55; 62 good Q; 88; 92; 98; 142; 153; 171; Extinction of old civilisations
55 *17–24m (Agassiz)* **62** *6–8m/1–12w* Tropic Dr Hayes ♣ yet little change, not more than between Tropic of old & new world *8–13m/16–22w* Effects on Habits of Life **88** *12–19m, 19–23m* **92** *6–16m/9w* refer to **98** *wt* but not through inheritance *3a "members"/3–8m* **142** *22–27m (Huxley)* **143** *1–7m* **152** *24–27m* **153** *1–5m/1w* Lyell **170** *12–17m* **171** *23–28m (Owen)*

PAGET, James *Lectures on surgical pathology* vol. 1; London; Longman, Brown, Green & Longman; 1853 [CUL]
af, beh, cc, ch, che, ct, em, h, he, in, pat, phy, rd, sx, t, ta, tm, v, y

NB p.25;32; 39 & 41 Size of Bloodvessels through attention to part– Expression; 63; 67; ◆ I have read First 3 & last Sections; 69; 71; All read; Ch 7 wd be worth reading; Pangen◆; p.11◆; p.13◆
SA ⟨*pp. 38–39*⟩ ❑β
Lectures p39 & 41 On thought increasing Blood-vessels
SB1 Pagets Pangenesis 1✍
◆✏ p.11 growth of new tooth & hair by offset go for simile with cell-gemmules
◆✏ p.13 each hair
▬◆
a feather lives its appointed time & then dies.
p.19 On differences in parts or cells appearing alike as shown by symmetrical diseases due to ♣ matter in blood which has affinity with those certain parts
✔✏ O✎ 27 On affinity of each part for

PAGET

certain substances in blood Kidneys for urea & for certain morbid poisons. as chancre.– Hydrophobia
50 scar propagating itself for years; & bears on blood altered for life by certain diseases
72 transplanted spur of cock, excessive growth of.–
150 ✓✏ Repairs of parts wonderful provision ready though so seldom wanted.– adult repaired by adult form – tail of tadpole– hence same force which was O✏ before occupied in its maintenance during wear & tear
154 ✓✏ power of reparation inverse to amounts of power, already consumed in development of individual
158 Gemmation retards repair of injury
159 Nais cut into 30–40 pieces & all formed individuals
163 Insects which do not go through much metamorphosis can alone when adult repair injuries p.164 power of development of embryo same as that ♣ in restoration from injury
SB2 181 & 331 The theory of coagulable lymph developing structure & as I supposed containing gemmules
219 ✓✏ – cuticle on sole thicker than elsewhere & so renewed, independent of pressure. good sentence to quote under Nisus, & on identity of power of development & of repair
239 Q On the tissues of scars gradually & slowly altering & assuming proper character
243 first material thrown down in uniting Bone.
343 assimilative power was assigned formerly to each tissue or the coagulable lymph in the vicinity
357 ✓✏ False membranes assume character like adjoining parts ✏ 369 Lymphatics
384 on Pus cells
✏ 254 Repair of Bones
✏ 256 good
SB3 ✏ Pangenesis; Pagets Lectures on Path.
11; 13; 19–20; 22♦ Laws of Variation♦; 27; 32♦; 50; 58; 60 good – refer to in *; 72; 150; 154; 158; 163; 164; 181 good; 199 ♦ Nisus formativus; 209 quote; 239; 243; 263; 268; 290; 331; 343; 351; 357 Ask– Nisus Formativus; 384; 483 Direct Action
I must say that Paget maintains that ordinary reparation & growth & gemmation &c are all the same.–
[I shd say that unknown cause prevents a man cut in twain from reproducing – partly too much injury]

SB4 ❑β ➾
25 Rudimentary organs serve to excrete matter Human foetus covered with wool
27 Kidney increases & does double work if one destroyed 67 skin growing thicker from use
39,41 on thought of part increasing blood-vessels
71 on growth of Hair, near where surface inflamed 73
72 enormous growth of spur on comb did not decrease spurs on legs
SB5 ✏
☞ Mem.– it is possible that gemmules may come from surrounding tissues & be developed in the Lymph – case of Negro-skin looks like this so with elastic tissue, which comes afterwards.–
⟨over, part ⇨⟩
Mullers Phys I p410 speaks of effused Lymph as transport & formation of new parts as due to its reciprocal action on inflamed adjoining structures.
[p416 regenerated skin in Negro after a time became black.– shows that gemmules entered after a time over

1 *zb* **11** *2u "shows | connection"/wt/1–6w* These germs must be very different from my gemmules; far larger & with power of male & female gemmules uniting – probably always distinct & not united into germ like that of tooth. Yet there is analogy in these cases. *15–19m, 15u "from | germ", 16–17u*✏ *"separating | germ", 28–34m (Kölliker)/15–34w* These germs may be compared with offset-bulb **13** *15–19m* **14** *3m* **18** *15–24m* **19** *3–5m* **20** *11–16m* **22** *7–10m (Budd), 12–16m* **25** *21–32m/22–24w* like milk teeth *33m* **26** *1–9m, 9–14m* **27** *1–9w* special affinities *12w* Hydrophobia *13–16m, 17–20m* **32** *5–12m/9–15w* Horns for fighting *13–17m, 19–24m* **33** *10–16m (Treviranus)* **39** *29–30m* **41** *14–17m* **50** *15–25m* **58** *12–13m, 14–15m/18a "But"/w* not *23–28m, 28–33m* **59** *7–11m, 14–17m, 17–18m* **60** *1–31w* How on my view can milk♦ 2d teeth, what are effects of old♦ first teeth resemble those of father *5–9m, 17–21m, 25–30m/w* important *31–34m/34w* good **61** *3–5m* **63** *12–13m/u "dependence | composition"* **67** *9–16m* **69** *5–9m, 22–26m* **71** *10–14m, 22–25m/w* Bears perhaps on wet producing more hair *35→* **72** *2–6m, 16–18m* **73** *4–6m* **150** *2–6m/"..."/6c/7c¢, 32–34m* **151** *1–3m/1–2u "to | parts", 9–29w* Newport has some remarks on this in Myriapoda *31–34m/w* tail of tadpole which ● cut off **152** *15–19m/17x*✏ **154** *7–9m, 13–18m/13–16m/11–21w* when body grows old gemmules like rest of structure cannot multiply. **155** *1–2m* **158** *27–29m (Trembley)* **159** *2–5m, 8–11m (Lyonet)/9u "Nais"* **163** *6–8m/w* some mature incr **164** *4–10m* **181** *8–14m/1–31w* must contain gemmules of many kinds; coag. lymph. I suppose is not cellular but forms cells *29–33m, wb* p198 – coagulable lymph is apparently♦ exuded always with ♣ some inflammation.– **182** *1–6m, 23–30m* **187** *5–7m* **198** *10–12m* **199** *3–6m/w* false membranes **209** *1–2m, 11–18m/w* from Coag Lymph but has said before on Hairs *28–31m/"..."* **210** *6–8m* **217** *1–3m/wt* outgrowth of Blood-vessels into granulations **238** *13–16m, 19–22m* **239** *2–4m/4u "change | year", 7–11m, 12–19m* **243** *28w* Bones *29–31m* **254** *8–13m* **256** ✏ *11–13m/12u "exposed", 14–15m* **257** ✏ *9–14m* **263** *30–34m/30w* cartilage **268** *11–12m* **290** *10–12m* **331** *9–10u "coagulable lymph", 11–19m, 11u "inflammatory exudation", 12u "pellucid", 13u "through | capillaries", 17–19m, 34m* **333** *wt* These are evidently formed *2–5m, 2u "coagulation | ordinary", 3u "corpuscles form", 9u "corpuscles | cells", 10–14m, 15u "first", 20–22u "not | nucleus", 23u "in | hours", 24u↔, 26m* **334** *7u "exposes | nucleus", 9u "the | cells", 15u "various degenrations", 15u "pus-corpus"* **335** *3–10m, 31–35m* **343** *22–34m* **351** *1–3m, 16–18m* **356** *6–10m, 10–12m, 14–15m, 33–34m/34u "fibrous | ligamentous"* **357** *2u "bone", 2u "osseus", 3u "epithelium", 3u "epithelial", 7–9u/7w* Bone?? *14–18u↔, 23–27u±, 32–34m* **369** *11u*✏ *"that | first"* **384** *28–31m/19–31w* Differs from L. Beale **483** *20–30m*

PAGET, James *Lectures on surgical pathology* 3rd edn; London; Longmans, Green & Co.; 1870 [Down, I]

PALEY, William *A view of the evidences of Christianity* London, 1822, 7 vols [CUL.1900]

vol. 1, 130 *⇑11–8m* **307** *9–11m* **315** *6c "fortuis"* **342** *11–13m*

vol. 2 NB 159
33 *11–15m* **34** *⇑15–10m* **39** *wt* Peter & John **41** *wt* Stephen *18w* persecut **43** *11w* James **44** *⇑6–5w* Barnabas **45** *3u "one"/w* Paul *⇑5w* Luke **46** *wt*● **57** *⇑10–5m* **80** *⇑2w* Matthew **81** *1–10w* Mark Luke John **140** *1–7m, 9–17m, 9–17m, 20m, 20m/u "our Digesta", ⇑10–9m/u "Old | Testament", ⇑6–5m* **190** *16u "Nothing"/w* the letting of a house some times depends upon it! **233** *18–25m* **236** *⇑18–1m* **238** *⇑15–1m* **239** *1–6m, 13–16m* **257** *↕m* **258** *1–20m* **263** *1–12m* **264** *⇑7–1m* **265** *1–20m* **269** *↕m* **270** *1–6m* **272** *↕m* **273** *↕m* **274** *↕m* **275** *↕m* **278** *1–15m* **280** *1–6m* **289** *9m* **309** *13m* **310** *6–10m, 16–22m* **335** *⇑18–1m* **336** *1–12m* **341** *↕m* **342** *↕m* **385** *↕m* **386** *1–8m* **393** *⇑20–1m* **394** *↕m*

vol. 4, xxii *"vi–xxii".m* **xxiii** *"Part II".m, "x–xii"m/w* read *"Part III".m, "Book IV".m/w* read *"Book V".m/m* **xxiv** *"Book VI, ch x".w* read

vol. 7, vii–xiv *⟨dates between 29 November 1840 and 4 September 1842 written against contents entries⟩*

PALM, Ludwig Heinrich *Über das Winden der Pflanzen* Tübingen; C. Richter; 1827 [CUL, pre-B]
gd, mhp, or, phy, sp, v, t, wd

NB1 Phaseolus cirrosus; 29 & 52 Momordica winds to left; 52
NB2 p.34 Hops
NB3 ✍ <u>Species Theory</u>
p.26 Convolvulus sucking plant like Cuscuta.– origins of new habit – Anagous var. see p.45 perhaps describes growth of papillae of Cuscuta
41 on certain plants becoming ♣ Twiners – good analogous variation.– see my Paper on Climbers
✏ p45 On growth of <u>Cuscuta</u>
✍ p2 Movements of Plants

1 *⇑4–1m* **2** *19–21m/19u "Calcana"* **6** *17–23m/23u "Fünftel", 26u "6 | 10"* **7** *6–7w* 4/5ths **10** *27–32m/27–28u "die | führen"* **11** *3–7m/4x✎, 19u "Blumenstiele", 21u "Amplideen", 22–24m, 32–34m/33u "Blattstiel"* **12** *18m/w* 424 *22m/w* 339 *24m/w* 378 *29m, 31m/w* 589 *33m/w* 402 **13** *2m/w* 664 *33m/w* 653 **14** *2m/w* 686 *6m/w* 511 *8m/w* 524 *12m/w* 538 *16m/w* 281 *20m/w* 205 *21m/w* 205 *23m/w* 158 *25m/w*♦713? *27–28⟨line across page⟩, 29–31w* all world not – Lindley **15** *12m* **16** *17–20m, 32–34m* **17** *6–8m* **18** *8–10m* **26** *10–19m* **27** *2m* **28** *25–27m/26u "Arten | Gattung", 30–31x✎, 30u "wahrscheinlich", 31u "Gattungen | natürlichen"* **29** *14u "Passiflora", 14u "Mormodica"* **30** *31–34m/x✎/32u "Stengels | sich"* **32** *26m* **34** *3–4m, 6–8x✎, 13–17m✎* **35** *31–32m* **41** *3–4m/x✎/u↔, 15–20m, 22–26m/x✎, 26–28u↔/28–30m/25–30w* wild plant **42** *6–9m/7–8u "es | Habitus", 21u*♦ **43** *10u✎ "Periplora", 14–16x✎/u "denn | Aesten"* **45** *9w* not read **48** *19u "sich | Gegenstände"/17–21m/w* Mohl devices **52** *11–15m* **53** *27–29!, 28–30!* **54** *15–17m* **55** *3–6m/4x✎/u "für | hält", 26–27m/u "sind | Blumenstile", 29–30x✎, 31u "Sie | von", 32–33u "und | untersten"* **56** *5–12w* do not curl up *12–14x✎/m* **57** *14u "Cardiospermum", 16–24m/22–24m✎, 32–34m* **58** *5–7m/5x✎/u♠, 30–34m/*

PALM

34x✎/23–34w Cirri more like Ivy Plants **60** *12–14m, 14–15x✎/m* **61** *11–12m, 23–29m/14–29w* Will not twist Ivy **62** *27–28m/28u* **63** *10u♠/10–11w* Linaria ● *14u "die | selbst"/x✎* **68** *31–35m/33–34x✎* **79** *20–22m* **92** *13–14x✎, 15–28w* no irritability!!! **93** *4–7m/4–6m, 7m/x✎* **94** *30u♠, 31–33u "ersteres | Windung"* **95** *wt* This shows his theory *1m, 5–6m, 7x✎, 9u "Die | Spiralform", 33–35m/34m/u "mit | Breite"* **96** *3–7m/5x✎, 32–35m/x✎* **97** *34u "die | selbst"* **98** *1u "aber | variire", 10–11u "indem | Pflanzen", 15–16x✎/u↔, 26–27m/u Wachsthum | unabhängig"/x✎* **100** *21m/21–22u↔/1–25w* there is no relation of quickening in movement of cirri to revolution *31–33m/31m/u "paralell | Wachsthum"* **101** *wb* I cannot make out whether he knew revolving movement of tendrils

PAOLUCCI, Luigi *Il Canto degli uccelli* Milano; G. Bernardoni; 1878 [CUL, I] ℘

PAOLUCCI, Luigi *Il Canto degli uccelli* Milano; G. Bernardoni; 1878 [Down, I] ℘

PARIS, John Ayrton *The elements of medical chemistry* London; W. Phillips; 1825 [Down, pre-B, S] ℘

PARIS, John Ayrton *Pharmacologia* 6th edn, 2 vols.; London; W. Phillips; 1825 [Down, S]

PARKER, William Kitchen *A monograph on the structure and development of the shoulder-girdle and sternum in the Vertebrata* London; The Ray Society; 1868 [Down] ℘

PARKES, Edmund A. *A manual of practical hygiene* 4th edn; London; J. & A. Churchill; 1873 [Down, FD]

PARKINSON, James *An introduction to the study of fossil organic remains* London; Sherwood, Neely, Jones & W. Phillips; 1822 [CUL, ED, S (Erasmus crossed out and replaced by Charles)]

PAUCHON, A. *Recherches sur le rôle de la lumière dans la germination* Paris; G. Masson; 1880 [Down, I] ℘

PENNANT, Thomas *History of quadrupeds* 3rd edn, 2 vols.; London; 1769 [CUL, S in vol. 2]
beh, hy, tm, v

vol. 1 NB ➾ 237–242; p.21
21 *16m* **33** *11–14m* **34** *14–17m* **151** *1m* **237** *1m*

238 *16–17m, 21–27m/21u "produced | puppies"* **239** *22–26m* **242** *17–21m/20u "vide | i.49"*

vol. 2 ⟨*markings presumed not by CD*⟩

PERNETY, Antoine Joseph *Journal historique d'un voyage aux Îles Malouines en 1763 et 1764* 2 vols.; Berlin; Étienne de Bordeaux; 1763–64 [CUL, pre-B]

vol. 2, 438 *1–9m*

PERRIER, Edmond *Les Colonies animales* Paris; G. Masson; 1881 [Down, I] ℘

PERSOON, Christian Henrick *Synopsis plantarum* 2 vols.; Paris & Tübingen; C.F. Cramer & J.C. Cottam; 1805–07 [CUL, ED]
gd, sx

vol. 1, 222a *31m, 38m, 43m, 52m*

vol. 2 NB1 Eucalyptus Icosandria
NB2 Many monoeic dioecious plants in New Zealand & many trees & bushes compare Monooeic & Dioecious here marked by crosses
⟨*untranscribed w:* W *meaning* Water-plants⟩
506b *15u "labello tripartito"* **512a** *7–10m* **529b** *4w, 30w* **530a** *11w* **531b** *5m* **532a** *37w* **532b** *19w* **534a** *17w* **550b** *11m* **551b** *9m* **557b** *23m* **561a** *9–11m* **562a** *28m* **562b** *21m* **565a** *27m, 42m* **566a** *2–3m, 11–12m, 45–46m* **567a** *18–20m* **571a** *43m* **571b** *25–26m* **572a** *15–17m* **572b** *46–47m* **573a** *16–17m, 28–29m, 50–51m* **576a** *32m, 49–50m* **576b** *⇑21m, ⇑4m* **577a** *50–52m* **578a** *2–3m, 36u "geminis elongatis"* **579b** *36m, 52m* **580a** *31–33m* **580b** *32m* **588a** *39–40m* **588b** *34–35m, 45–46m* **589a** *3–5m, 15–16m, 32–33m* **596a** *6m* **597a** *6–7m, 33m* **597b** *28m* **598a** *50–51m* **598b** *21–22m* **604a** *41–43?, 44m, 54–55m* **608a** *6–9m* **612a** *32–33m, 41–43m* **612b** *31–33m* **616a** *12–13m, 35m, 39–40m* **616b** *47–48m* **617a** *2–4m* **622a** *12–13m, 29–30m, 42–43m, 51–52m* **622b** *43–45m* **623a** *2–3m, 14–15m* **623b** *3–6m* **624a** *24–26m* **626a** *2–4m, 20–21m* **626b** *2–4m* **628a** *47–48m* **628b** *27–29m* **629a** *23–24m* **639b** *9m* **630b** *29–30m* **632** *6–8m, 21–23m* **632b** *39–40m* **633a** *22–24m* **634a** *44–46m* **634b** *22–24m*

PETTIGREW, James Bell *The physiology of the circulation in plants, in the lower animals, and in man* Edinburgh; Oliver & Boyd; 1873 [Down, I]

PETTIGREW, James Bell *On the physiology of wings* Edinburgh; Neill & Co.; 1871 [Down, I]

PHILIPPI, Federico *Catalogus plantorum vascularium chilensium* Santiago de Chile; Imprenta Nacional; 1881 [Botany School, I]
℘

PHILLIPS, John *Geology of Oxford and the valley of the Thames* Oxford; The Clarendon Press; 1871 [Down]
fo, geo, sy

NB p.404 on the filiation of Secondary Molluscs
404 *1–9m/w* see previous cases **405** *17–20m/17w* Palaeotherium

PHILLIPS, John *Life on the earth* Cambridge & London; Macmillan & Co.; 1860 [CUL, I]
ch, fo, geo, ig, ir, or, sh, sp, t, ti, tm

NB1 (a) argue against this; it is not always the perfect types which first appear – Ruminant & Pachyderms. Intermediate Reptiles – Intermediate fish–
✐ In Asa Grays Review of this book (I think in Origin Portfolio) I have some remarks on one important subject, why some forms are changing I bring forward some mammals not changing
p.163
NB2 Species Theory; 212 & 214 good (a); 66; 69; 99; 126 calculation of sediment of Ganges; 133 – Time required for formation of Coal; 141 Retrocession of Falls; 167 Age of chief axes of Britain; 207 Breaks are not real, elsewhere filled up
When I come to Geolog. Record or Laws of Succession look over this Book

69 *21–27m* **99** *23–27m* **126** *9–15m/6–14w* Blank interval omitted **127** *17–18m/→* **129** *16–20m* **130** *8–11m* **133** *24–26m/26u "127.5"* **134** *3–6m, 9–12m* **141** *23–25m* **163** *wb* **233** **167** *14–19m* **206** *2–27w* Silurian strata not like Tertiary – one steep inletO at MalvernO **207** *1–17m/wt/1–18w* but what percentage of identical fossils in these stages – what term for each 3 or 4 percent *1–13w* How can this be said, when we have such cases as Forbes 3 sets of shells *17–24w* It is hard to judge of breaks. **210** *9–21m* **212** *7–22m* **214** *4–12m, 17–26m*

PHILLIPS, John *A treatise on geology* (Lardner's Cabinet Cyclopaedia), 2 vols.; London; Longman, Orme, Brown, Green & Longman; 1839 [CUL, S in vol. 1]
che, fo, gd, geo, mi, sy, t, ve

vol. 1 NF Buy Brewster on Microscope
267 *37–38m* **268** *20u "red | masses"/19–21w¢¢* **272** *19–22m* **277** *36–40m*

vol. 2 NB1 ♦ Lyell; p.13 wretched classification; Mention this, whenever I come to S. America; Copied
NB2 18 ⟨*he means 13*⟩ List of Mam. of Europe must be referred to for notes
♦ 46; 51; 57;
The whole of Plutonic including trap veins perhaps do not differ greatly from the whole of the Volcanic.– But in the latter there has been a greater separation of ingredients, from position, causing cooling & crystallisation
lead & silica do not separate, whilst both fluid – How is brass, & glass with red lead in it? AttractionO in these cases.–
63; 65; 73; 80; 83; 100 St Jago; 115; 125; 135; 160; Copied

1 *zb* **13** *21–43m (Lyell, Cuvier, Owen, Agassiz)/26–36w* not applic. to S. American fossils **24** *25–27m/26u "Irish Elk"* **27** *15u "Irish | &c"* **28** *27?/u "fallow"/26–29w* see Bell's quadrupeds **46** *27–33m/30–31w* see p.50 **50** ⇈*10–1m* **51** *24–39m* **52** *1–28m* **57** *29–35m, wb* This classification infers that there is as great a difference in the Plutonic as the Volcanic which I reject **65** *9–15m, 2nd fig.m* **66** *11–12m, wb* Felspar is in excess surely see analysis of greenstone **68** *1–27m (Phillips)* **72** *wb* There are dikes of granite **73** *wt* Tortuousness still more distinguishing character hence not streched mechanically shrinking *1–37w* The Plutonic rocks being so much most internally heated would shrink more than volcanic. Do most substances shrink in solidifying, yes, except water. iron shrinks?? *wb* Trap veins most analogous in Salisbury craigs to Plutonic: **80** *37u "porphyritic", 39u "never | case", wb* Andes **81** *17–22m/w* argue granite near surface of all ages in all parts of world hence thinness of crust **83** *5–39m/wb* thin crust theory **84** *3–20m* **100** *4–6m (Daubeny, Von Buch)* **115** *30–37m, 38–39m, wb* augitic porphyry: granite:: basalt: trachyte **116** *1–8m, 20–24m/w* thin-crust theory **125** *1–28m, zb* **126** *4–39m* **127** *1–38m (Necker)* **128** *1–26m (Dufrenoy)* **129** *15–18m/w* No **135** *3–18m (De la Beche)* **160** *12–19m (Fox)* **162** *14–23m (Patterson)* **209** *3–32m (CD)*

PHILLIPS, John *Vesuvius* Oxford; The Clarendon Press; 1869 [Down]

PHILLIPS, William *An elementary introduction to the knowledge of mineralogy* 3rd edn; London; W. Phillips; 1823 [Down, pre-B]
che, mi

PHILLIPS, W., MINERALOGY
SA *⟨pp. 224–25⟩* ✍ Jamieson lecture 2.2.1846 about iron when cmpds. scratched
SA *⟨pp. 62–63⟩* ditto, about Hornblende
SA *⟨pp. 350–51⟩* ditto, about Tin when scratched
xxvii *26–27m* **cvii** *4w* potash○ **58** *wt¢¢, 17–19z wb¢¢* **114** *wt/wb (calculations for making various compounds), 10m/13–20w* Jamieson **136** *14–16m* **146** *wb¢¢* **147** *wt¢¢* **161** *14–15m, 31–32m, 34–35m* **368** *1–4m*

PHILLIPS, William *An elementary introduction to mineralogy* 4th edn, ed. R. Allen; London; Longman, Rees, Orme, Brown, Green & Longman; 1837 [CUL]

55 *fig.wt¢¢* **218** *10m, 36–37m*

PICKERING, Charles *The races of man* new edn, to which is prefixed *An analytical synopsis of the natural history of man* by J.C. Hall; London; H.G. Bohn; 1850 [CUL]
fg, gd, is, ti, wd

SB1 I have not read this book <u>sufficiently</u>
✎ Read again
46; 74; 63; 315; 317; 318; 323; 326; 333 Table; 339; 340; 346; 366; 369; 372; 374; 377
Consult Index for History of ancient animals
◆ Mr Birch told me that History of Fowl is given in some work by Pickering
SB2 ❐ℜ
Selected References Oct 56
317 Dog, thinks introduced into America.–
338 Feral Animals of Pacific
315 *⟨he means 335⟩* Rhamses Sethos, Bullocks in Aegypt during his age
361 Domestic Pigeon in Sama Vida
374 Ancient History of Fowl
361 & in Institutes of Menu
58 on island only 2 plants & drift wood
55 transported seeds
59 lizards

46 *25–33m* **55** *3–10m* **58** *13–27m, 31–34m* **59** *30–33m* **61** *31–33m* **63** *6–8m/7–8u*↔ **75** *20–29m* **274** *1–7m* **314** ⇑*4–1z/zb* **315** *6–8m, 17–20m/25u "Greyhound* | *Turnspit"* **317** *3–6m* **318** *29–32m* **323** *25–31m* **326** *4–8m* **339** *9–11m/11u "has* | *wild", 16–17m/16–17u*↔, *22–25m/23u "Hawaii", 23u "according* | *Samoa", 26–27m, 36–39m/38u "greatly* | *Honolulu"* **340** *27m* **345** *27–29m* **346** *9–11m* **355** *33–34m* **359** *36–39m/38u "Rhamses Sethos", 45m (Rosellini), wb* age **360** *29–30m, 43m* **361** *13m, 14–16m, 34–37m, 36–46m/37–46m* **362** *4–5m* **363** *13–15m* **368** *38u "sixth* | *Saccara"* **369** *4–21m/4–5m, 10–15m, 19–21m* **370** *2–4m* **372** *19–21m/19u "BC2200", 23u "Beni-Hassan", 29–33m, 33–37m, 39–41m* **373** *45m* **374** *18–27m, 26–28m, 29–32m/30u "Medinet Abou"* **377** *36–38m* **415b** *48w*

PICTET, François Jules *Traité élémentaire de paléontologie* vols. 1 and 3; Genève; Cherbuliez; 1844–45 [CUL]
cc, ch, ds, em, ex, fo, gd, geo, hl, ig, im, ir, is, mg, no, or, sp, t, ta, ti, tm, v, wd

vol. 1 SB1 ❑β
67x–x91 <u>Law</u> more ancient the animal the more different from living (must mean in mass p.69)
89 argues no important differences in domestic animals
91x argues against change of species, from apparition of <u>new types</u>. Good like new organs
91 admits that successive stages of same formation have closely allied forms
108 curious to see how lately my conclusion wrong on coming in of Mammalia
126 what a number of monkeys over world must have existed since Eocene period & tertiary beds of Hymalaya & Brazil – continuous in Europe – How rash to judge of what world holds from Europe: no insectivora or hollow-horned Ruminants in S. America – Madagascar no Carnivora Australia Carnivora. Europe probably once an isld.
144 Cuvier doubts on species of Ursus
154 on intermediate forms
165 Dog, origin of, important
Bearing in mind Glacial periods rash to say conditions similar in stages of one formation; or if so look to space as guide.–
I will cease extracting better get new Edit
SB2 read as far as p37◆ Pictet Vol I
66; 80; 83; 91; 108 creation; 126; 129; 134 to End of Vol.; 362

66 *16–20m* **68** *5–11m/5–7w* Fish!! **69** *6u "terrains anciens", 15–16m, 19u "térébratules", 24–25m* **80** *16–17u "gastéropodes", 24–30m/25w* ancient **83** *1–11m* **89** *5–16m* **91** *3–5m, 23–30m* **108** *20–25m/w* immigration of ruminants?? **126** *18–30w/wb* What an immense number of monkeys must have existed – this highest form being Eocene convinces me of prior existence of Placental Mammifers. How many marsupials since Jurassic ones. we may always put on one side cases ie those of Brazil & N.S. Wales **127** *24a "Simiae"/w* old world **129** *19–25w* In Europe from Eocene to Miocene & only 2 fragments **134** *24–26m* **138** *1–5m/wt/1–6w* Australia now no great Carnivora – **141** *1–3m/w* none fossil or recent in S. America **145** *18–21m/w* Madagascar no Carnivora? **149** *24–27m* **154** *10u "bassin | Paris"/w* Eocene *11–19m, 14–15m, 18–21m* **157** *24–25m/24u "des | sa"* **158** *3–4m/4u "miocène"* **160** *22–24m, 24–26u "dès | qu'ils", 28m* **165** *5–7m, 17–19m* **166** *10u "osseuses | Sardaigne"/10–11m* **168** *26–28m* **172** *26–27m* **174** *23–25m/6–25w* It is evident that Carnivora more connected formerly than now **178** *10–12m* **182** *15–19m/14–21w* yet widest ranges, ought to have lived long **187** *26–30m (Lund)* **188** *19–20m* **190** *14–17m* **195** *24–26m* **212** *23–25m* **231** *20–21m* **235** *10–14m* **236** *11–16m* **237** *5–8m, 11–13m, 15–16m/16w* recent **238** *10–11w* Miocene Mastodon **255** *26–29m, wb* I do think it odd that not more intermediate forms – many as they are. Preservation only at periods **256** *24–26m* **258** *20–22m* **259** *8–9m* **260** *30–31m* **264** *6–8m, 12–14m* **267** *9–12m, 14–16m* **269** *1–2m* **274** *28–30m* **275** *15–16m* **276** *13–15m* **280** *2–4m* **288** *6–12m* **289** *9–12m/9–25w* Ruminants & pachyderms coincide in India– From Edentata of La Plata how rash to argue Rumin not created – or Australia **297** *13–14m* **308** *9–11m/w* S. America *wb* We see now that several tribes more restricted than at latest Tertiary period, so formerly they might have been still more so – If we knew that the Anoplotherium was created at Eocene then we might argue that Ruminants were created lately **320** *16–19m* **346** *16–21m (Cuvier)/19u "onze espèces"/16–21w* cf. Water & Land Birds! *13–25w/wb* How strange not more common in Secondary period – Lobsters Fish in Old Red also – Didelphys again What a gap from Lower Jura to Tertiary **347** *8u "l'argile | Londres", 16u "l'argile | Londres"* **349** *22–24m (Schmerling)* **350** *20–22m* **351** *7u "à | doigts"/5–8m (Lund)* **362** *18–21m*

vol. 3 NB1 I must allude to Pictet in Preface as having argued against perfectibility & variability with great skill.–
NB2 45 Ampullaria Branchiae & pulmonate cavity
SB1 In the Gasteropods & in a lesser degree in the Acaephales, it is really surprising how few exceptions there are to the succession of the genera – when a genus appears in Silurian it almost always (all exceptions marked) appears in nearly all the great formations. When we consider the different mineralogical nature of some of the formations; & difference of depths (such as chalk Sea probably deep) it is wonderful – when an existing genus appears in Jurassic almost◆ always◆ far most generally appears in Chalk & Tertiary [Fish are◆ genera are too short-lived for this to appear: but yet I think it holds pretty often; but then the formations for fish are so rare] It must be remembered how easily errors occur.
SB2 See to this & to Chelonia & Crocodiles, & in few existing genera of Mammifers which are formed in Eocene. It wd be very important to show that this is law; certainly in Mollusca it is impressed on one; & so in few Cephalopods?– It would be like showing connection in Geographical Range. so in space & time.– [I did not think of this, till beginning Gasteropods: easy to see to it in other orders] In Fish the law had better be tested by families. It will signally fail if M. Bolca in Cretaceous

7 *15–19m* **10** *13–15m/?, 28–30m* **11** *19–20m* **12** *23–26m* **21** *3–4m* **27** *18–21m/w* certainly *26m, 27–30m* **36** *1–5m (d'Orbigny)* **39** *6–9m, 16–18m* **43** *13–15m/w* Have they Branchiae **45** *11–13m/11–17w* V. Cuvier would the abortion of Branchiae give structure of Pulmones? **46** *15–18m* **47** *17–21m* **53** *3–4m/w* Turritelles **90** *12w* Triassic *15–17m* **95** *1–2m* **128** *15–18m* **133** *12–15m* **208** *28–30m* **223** *18–24m* **224** *18–22m* **225** *3–9m* **241** *1–2m* **252** *10–17m* **256** *9–12m* **270** *11–12m* **273** *12m*◆ **305** *28–30m/25–39w* Thus the extinct genera occur in considerable formations *wb* What a number of genera are Silurian; it is most clear that according to me Silurian must have been preceded pretty much by longer time than has since elapsed. Cephalopoda lead to same result. **313** *23–25m, 26m/?* **322** *15–17m* **325** *16–18m* **327** *27–30m/29u "tandis | Europe"/w* perhaps not **333** *19m, 23–24m* **362** *22–27m* **365** *13–29m/14–15w* series is extinct *wb* It may be said, when a genus is extinct & occurs in several formations, those with rarest exceptions are consecutive formations → **366** *wb/23–28w* This class of facts makes one think the record for Mollusca pretty perfect, but it does not affect frequency & size of gaps in record. **397** *1–5m* **408** *25–28m* **409** *9–15m/w* so found in consecutive formations

PICTET, François Jules *Traité de paléontologie* 2nd edn, 4 vols. and atlas; Paris; J.B. Baillière; 1853–57 [CUL]
af, ch, ds, em, ex, fo, gd, geo, gr, hl, ig, ir, no, oo, or, se, sp, sy, t, ta, ti, tm, v, wd

vol. 1 SB □β
42 to 55 D'Archiac Law to 75 to 133
157; 166; 169 to end

PICTET
573 important on classification
202 on fossil Dogs Q
363 on Bos

46 *16–19!!/17–19u*↔, *27–30m/28u "verra que"/ 29–30u "les | tranchées"* **47** *9–16m, 20–22m* **48** *18–20m* **49** *13–23m, 30–33m* **53** *12–14m, 20u "de | pour"* **54** *11–16m* **55** *8–11m/*Q **56** *20–25m* **57** *26–28m* **58** *15–18m* **59** *7–11m, 28u "terrains anciens", 29–30m, 31–33m/33u "térébratules"* **60** *5–6m, 8–12m/8–18w* not evidence enough – How few new orders have appeared **61** *14–25m/16–18w* decreasing Forms **62** *2u "dévonien"/w* Lizard *7u "époque oolithique"/!, 9u "monodelphes"/!* **65** *29–31m* **67** *6–7m* **68** *13–15m* **69** *1–7m, 20–22m* **70** *24–26m* **71** *8–14m/ 8u "genres"/9u "celle | familles"* **73** *14–15m* **74** *9–11m* **75** *29–30m* **77** *24–28m/25w* Extinction *30–33m, wb* it is not surprising that Geologists shd talk so, but it is astonishing that Naturalists shd do so – **78** *1–6m* **79** *27–28m (Elie de Beaumont), 29–31m* **82** *20–23m, 24–28m* **85** *1–4m* **87** *29–33m, wb* like Vestiges **89** *1–3m, 25–29m* **100** *9–19m/13–14?* **101** *20–22m/?* **111** *7–14m* **133** *21–27w* 5 ● or 6 Faunas in France beneath recent **157** *27–33m* **161** *1–2m* **163** *14–17m* **166** *5–7w* yet how specialised a genus *9–10m, 11–12m/u*♠*/w* same genus **169** *8–10m, wb* 1854 Spalacotherium tricuspidus present Mammals in Purbeck **179** *20m, wb* Machairodon f. in Nebraska Eocene **186** *12–14m* **188** *4–11m (Serres), 31–34m* **192** *16–17m/17u "intermédiaire", 21–24m* **193** *6u "pendant | existence"* **194** *6–8m, 9u "miocène", 28–33m* **202** *14u "tertiaires éocènes", 15–17m* **203** *16–21m* **204** *5–7m, 13–19m (de Blainville), 26–29m* **205** *6–8m/7u "crânes | sont"* **207** *16–17m, 18–19m* **209** *13–15m* **211** *20u "miocène d'Auvergne"* **214** *17–19m/18u "transitions intéressantes"* **216** *4–5m* **223** *20–28m* **226** *29–30m* **230** *6–8w* Now in N. America & I believe S. America **234** *17–18u*↔ **257** *23–26m* **261** *22–25m/24u "comblé l'espace"* **262** *4–7m* **263** *9–12m* **273** *8–11m* **276** *18–21m/18u "tous | habitent"/19w* no **292** *6–7m, 11–17m, 20m, 21–23m, 32–33m* **293** *3–5m, 10–11m/6–12w* Look at globe & see where a spot explored *25–26w* 2 series of Pachyderms *28–29u*↔, *31–33m* **313** *29–30m* **318** *29–34m* **335** *15–16m/12–34w* Ruminants may have existed in other continents *wb* In all such cases, it is not that Ruminants & Pachyderms then existed. How often people have wondered why no Ruminants in Paris Basin! **343** *21–23m* **344** *5–8m, 11u "moyenne"* **352** *10–12m/11u "tertiaires | supérieur"* **361** *19–21m, 26–27m* **363** *22–23m* **364** *29–32m* **365** *5u "comme | boeufs", 12–13m (von Meyer), 14–15*Q *16–17m (Owen), 18u "brachyceros"* **366** *28–29m/27–35w* I shd think Probably new order; but naturalists object properly to new orders. **367** *13–15m, 28–31m* **375** *7m/u "ordre nouveau"* **383** *26w* Arctic seas *wb* & Sirenidae Tropics **384** *14–15w* What range **386** *25–28m* **390** *4–10m (Buckland)* **392** *15–18m* **393** *wb* 1854 Stereognathus ooliticus a larger quadruped Charlesworth Stonefield 2ce the size of many of his ✂ **395** *27–28m/u "espèces de"/w* Didelphus in lower Miocene **404** *18–24m/20–22w* Iguanodon Owen **407** *26–28m* **408** *10–12??, 13w*✍ see p.527 **410** *22–23m/22u "la | de"* **411** *18–19m/18u "Strix"/19u "gypses | Montmartre"/20u "genre | caverne"* **412** *22–23m/ 22u*♠ **414** *2u*♠, *3u "cavernes | Brésil"/m, 6u*♠, *8u*♠, *15–17m/17w* Am **415** *7–8m/7u "gypses | Paris"* **416** *1–3m, 6–8m (Lund), 19u "sous-genre Rhea"/18–20m/w* Good Birds follow law **417** *11–12m (Owen)* **419** *6m/u*♠ **420** *20–23m (Mantell)* **421** *17–18m/18u*♠ **425** *1–3m* **429** *27–33m* **430** *11–15m* **431** *10–12m, 17–20m, 29–35m* **432** *5–8m, 10–14m, 18–21m* **439** *11–13m/ w* 4 families & Chelonians **440** *28–32m* **455** *14–16m* **459** *13–17m/13–28w* Emys & Trionyx being now present alive in F.W. is another instance of F.W. preserving alive ancient forms. **474** *wb* 1654 Nothelis destructor a minute Megalosaurus – Owen ● **475** *28–30m, 33–35m* **493** *21–27m/22w* Transition **500** *wt*♦/ *1–6w*♦ Even to a certain extent our generally FW crocodiles are only remnants of the large families numerous Secondary & ancient Tertiary Marine genera So many were formerly F.W. forms **501** *7–8m, 9u "rappelle | crocodiliens", 12–14m* **513** *21–22m* **527** *10–12m (Owen)* **529** *13u*↔, *22u "sauriens | de"* **530** *12–16m* **532** *19–22m* **543** *7–10m, 18–21m* **544** *3–5m, 6–8m* **545** *27–29m* **547** *9–11m* **551** *4–5m* **554** *15–17m, 20–23m (P. Duff and W. Mantell)* **555** *23–26m, wb* Excellent case of Analogy (?) **556** *6–10m* **560** *3–6m, 8–9m* **568** *13–20m* **572** *34–37m* **573** *wt* Does it come to be whatever is fixed? *1–4m, 5–6m*

vol. **2** **SB1** 22 to 40; 77; 98; 101; 102; 127; 132; 196; 226; 309; 310; 318; 349; 361; 363; 368; 371; 386; 396; 399; 405; 406; 409; 411; 413; 476; 481; 482 to 484; 490; 502; 580; 582; 585; 601; 619; 649; 659 groups of ammonites more or less confined to different stages; 485 Balancement; 476 blending; 480 soldering; ✍ Vol 2

22 *13–16m, 19–22m* **23** *1–2m* **24** *5–8m (J. Müller)/5–6u "esturgeon | polyptère", 14–16m* **25** *7–9m* **26** *19–23m, 23–28m* **27** *11–14m, 22–25w* Eocene mammals very different *24–26m, 34–*

35m/34–35u "à|époque" **28** *11–13m, 30–33m* **30** *8–11m* **31** *3–6m* **32** *22–26m/27–33m/17–33w/wb* sea shells & echinoderms convince one sea was salt if there was rain there wd be lakes. Might as well say no caves. **35** *1u "Glavis"/w* Tertiary **36** *24–27m/17–29w* So he thinks Teleosteon a recent fish the most perfect **37** *16–20m* **40** *14–16m* **77** *14–19m* **98** *30–34m* **101** *wt* Constantly removed from sea, is why not more ancient. *7–13m, 15–17m, 33–34m* **102** *8–9u "d'eau douce", 9–11m* **127** *16–18m, 28–29m* **128** *13–21m/w* If we look to sea alone more striking still **129** *1–4m* **132** *16–21m* **133** *1–5m* **196** *31–34m* **226** *21–24m* **309** *16–22m* **310** *12–19m, 22–24m* **318** *21–23m* **329** *20–22m* **349** *1–2m* **361** *1–9m* **363** *21–24m* **368** *3–8m* **371** *24–25m* **380** *23–27m* **386** *1–4m* **396** *13–15m* **399** *25–26m* **405** *18–20m* **406** *23–26m* **409** *13–14m* **411** *23–26m/23–32w* & very different in Fish & in Mollusca Cephalopods *27–30m* **413** *7–8m, 22–28m, 28–29m, 31m* **414** *28–32m* **476** *23–29m* **480** *12–13u "mais|ensemble"* **481** *21–28m* **482** *15–22m/6–22w* Gestation or incubation necessary for discovery of Metamorphosis or free & different life **483** *6–11m, 12–14m, 27–28m* **484** *1–5m* **485** *1–2m/1u "à|thorax", 3–7m* **490** *16–25m (Barrande)* **502** *22–25m* **570** *wb*♠ **574** *1w* is a boring sponge *8w* is a boring sponge **580** *9–11m, 31–33m* **581** *19–25m* **582** *1–5m, 26–30m, 31–33m* **584** *29–33m* **585** *2–8m, 9u "des|diverses", 11u "pendant|primaire", 16–20m, 33u "deux|branchies"* **593** *1–2m* **594** *14m* **601** *3a "spirulides"/wt* all Tertiary *4a "céphalopodes"/wt* Lias *2–6m, 7m, 12–14m/13u "famille|tenthides", 14u "bélemnites", 16u "aptiens"* **619** *6–8m, 10–14m, 16–19m, 21–24m* **649** *24–31m* **659** *5–12m*

vol. 3 SB ❑β
7 & 11 & 12 & 14 & 36 & 38 & 128 How excessively slow Gasteropods species♦ change – how few groups appear or disappear since Eocene.–
250; 333; 416
463 It is evident thus very few exceptions at whatever stage species♦ a genus or Family commences it is continued till it becomes extinct. This being capable of in fact strongest fact I turn against Imperfection of Record. Perhaps only shows no enormously long blank intervals

7 *26–33m* **11** *10–13m, 17–21m* **12** *15–20m* **13** *13–16m, 21–25m* **14** *5–11m* **36** *25–29m (d'Orbigny)* **38** *6–7m* **128** *26–31m* **250** *5–11m* **333** *12m, 17–20m, 32m* **334** *3–4u "orthoconques sinupalléales", 26–33m* **335** *1–5m, 14u*↔ **416** *2–5m, 7–9m* **463** *3–9m*

vol. 4 SB ❑β
2; 7; 8; 42; 79; 90; 119; 231; 261; 263; 284; 293; 360; 481; 487; 532; 562 to 569; 577; 578; 580; 584 to 617 to end of Vol.
All evidence in this Book relates to Genera It may be that species change quicker without♦ than genera; about higher & lower forms changing quicker
SB2 ⟨*over*⟩ On my view of formation of long intervals (because during subsidence & when mud) & though each very long in years yet infinitely short compared to all time; the chief difficulty is contemporaneousness of formations over Europe & in America – it shows some grand movement of earths crust yet very existence of continents implies very wide elevation–

2 *6–9m* **7** *16–18m, 20–22m, 27–29m/28u "presque|moitié"* **8** *1–3m/m*♦*//3u "vingt-huit", 7u "dix", 10–12m/9–17w*♦ le genera which change quickly necessarily have short duration *wb* When many species & genera exist they change quickly because they are too common & varying forms not in class but in whole Kingdom, & are quickly replaced **9** *1–3m, 11–12u "quatorze|inférieur"* **42** *11–15m* **79** *28–31m* **90** *3–5m, 4–8m, 19–20m* **119** *23–26m* **231** *wb* so many cases of this (leaving out Silurian) that it must be a rule, though exceptions as in Fish Ctenoids coming in **261** *wt* show how small proportion of lines from Silurian to present day compared to what has existed *3–9m/5w* (a) **263** *17–19m* **284** *12–16m* **285** *17–20m, 30–31m/31u "trois quarts"* **286** *1–5m, 5–21w* There seems no relation to speciality & absence of genera here **293** *27–28m* **360** *15–21m, 24–26m, 27m* **361** *1–4m/1u*♠*, 6–8m* **481** *4w* 79 *6w* 51 *9–13m* **487** *7–11m* **532** *16–21m* **562** *3–7m/3u "Si", 15–16m/15u*↔*, 23–25!* **563** *2–4m, 9–13m, 16–18m* **564** *27–30m* **565** *18–23m* **566** *17–22m* **569** *19–21m, 27–30m* **577** *3–6m (Agassiz)* **578** *fig.w* Inequality of relations of successive Formations **580** *17–26m, 32–34m, wb* Marine Triassic not well known **581** *1–3m/w* less marked **583** *24w* St Cassian? **584** *18–21m* **586** *15u "six genres"/14–16w* In total **588** *27–28m* **589** *19–20w* change rapidly *29u "dont|spéciaux"* **617** *4–5m, 8m, 14w* St Cassian *16–20m* **618** *12–16m* **619** *20–25m/w* & very closely allied *31–33m* **620** *1–3m, 23–31m (d'Orbigny)* **622** *34–35m* **624** *25–27!/27m/u "Un|de", 29–30m* **627** *4–5m/4u "deux|genres"* **630** *4m, 8–9m* **634** *12–14w* no Genera see Table **636a** *27m, 37m* **636b** *7m, 8m, 12m, 17m, 25m, 26m, 28m, 42m* **644** *37–38m, wb* So he brings down to level of Teleostees & before that Fish not very rich **645** *9u "en Amérique"/ 1–31w* shows how many sub-divisions can be <u>locally</u> traced, not so everywhere **646** *24u "sont | abondants", 31–32m* **649** *3u "gault | de"* **650** *9–11m* **651** *12u "y | connus", 15–16m/15u "genres"* **652** *36–37m/36u "mont Liban"* **666** *2–4m* **667** *1–4m/4u "ont | tranchées"* **668** *14–16m, 31–38m* **669** *10–13m/w* 7 **672** *37–39m* **678** *19–24m* **684** *2–4m* **687** *18–20m, 28u "Monte Bolca"* **688** *12–16m* **692** *7u "quelques | douce", 13–14m* **702** *40–41m* **703** *4–5m, 25–27m, wb* Palaeozoic, Secondary & Tert., only due to larger gaps

PIDERIT, T. *Wissenschaftliches System der Mimik und Physiognomik* Detmold; Klingenberg; 1867 [CUL]
af, beh, ds, h, pat, phy, rd, t, tm, v, y

NB 21 to 27 His view given
p.88 do to end of Chapt
p107–9 Th. resume –
☞ p.91 Perhaps a rudiment ask W. Turner.
After p.109 Not one word for me
Many good bits in this Book, but the fundamental idea seems to me groundless & fanciful – Nov. 67
SF ❑β ✍ *⟨10 sheets, not CD; mainly a translation of pp. 21–27⟩*

4 *4–13w* Man understands expressions without a grammar Very interesting *24–28w* No explanation **5** *6–12m/w* Sir C. Bell does not explain why certain muscles act during certain emotions. *14u "Oken", 15–18w* explains by Homologies of muscles of Limbs & face.– **7** *5–6m/w* madness? *21–23m/w* order **8** *wt* He prior to Gratiolet *1–5m, 16–17m* **19** *7–13m/w* Face most expressive because nerves site nearest to Brain!!! **21** *2w* Translated **23** *3–16w* Each abstract idea appears to mind like real object *19–20m, 20–25m* **25** *2–4m* **26** *19–21w* His theory!! *21–27m* **40** *14–26w* Hence face muscles not very distinct so Huxley says *23–25m* **44** *wt* corrugators used in shutting eyes very closely *1–2m, 10–11u "und | Auges", 20–31w* Henle considers Corrugator as part of Osb. Palp. **46** *1–13w* wrinkle forehead pulling on Boot.– a stammerer.– Concentrated thought, when difficulty – seeing or hearing anything with difficulty. Suffering diseased Men.– **48** *4–8w* Expression of eyes modifies character of frown– **50** *wt* widely open eyes astonishment **52** *7–12w* occip-frontal raises eyebrows & thus opens eyes widely **56** *24–27m/w* shining of eye **58** *8–20m/w* secretion of tears excited differently from saliva or milk **59** *15–33w* Rubbish – no explanation – nerve excited because near seat of mind.– **60** *12–23w* why do tears relieve grief why do scream relieve pain – **61** *24u "Lebensmonate"/ 22–26w* <u>Q</u>✍ Cretins do not cry nor babies **63** *wt* Brightness of eye depends on fullness of ball *1–4m/w* In Cholera eye collapsed *7m/w* in dead do **64** *18–19m/9–23w* in Fever eyes sparkle owing to capsules gorged with blood, so perhaps in passion – **65** *20–24w* in grief circulation depressed & eye dull *31u "Freude | Zorn"* **66** *14u±/w* sparkle **67** *7–8w* Drinking eye dull **70** *13–23w* Kissing initiation of sucking – movements of Babies: after nodding, but not instinct for Fuegians do not kiss.– **72** *7–18w* mouth opened with bitter taste that the tongue may not be rubbed against palate *21–30w* good account of expression from bad taste. upper lip raised **74** *5–28w* Thinks the bitter look, with raised upper lip comes in expression of horror – Leonardo says upper lip raised as if for scream **79** *4–8w* In great exertion one shuts mouth & teeth firmly. *11–5m/11–22w* the exertion spreads in useless way to other muscles: especially face muscles– (so in yawningO) **80** *26–30m/w* nearly my view **81** *15–17w* firmly closed mouth expresses *18–22m* **82** *18–28w* in ♣ rage upper lip raised!! for <u>bitter taste</u> & teeth closed for energy *wb* X Wings of nostril raised, because respiration & heart action increased. & with closed teeth person must breath through nose – No *⇑3–1m/x/w* All like my views **83** *29w* Contemplative expression **84** *1–5w* lifts head & looks downwards & sideways & half closes eyes. *20–29w* upper lip bitter expression Lower lip as if to push away something disagreeable *28u, wb* blows out air as if to blow away some insignificant object. **85** *⇑3–1m* **87** *wt/1–23w* When Eustachian tubes plugged by mucus in inflammation of the throat Hearing rendered difficult *14–22m, 25–27m/w* He who listens to unclear sound opens his mouth→ *wb* See my old Notes – Whales Dr. Murie. all very doubtful **88** *4–7w* I must quote him *8–13w* elevates eyebrows in astonishment opens mouth. *11–15m, 15–22w* My theory is here given, & is applied to mental phenomena. *22u* **89** *wb* When horses & dogs surprised & startled they prick their ears, Man opens mouth – & raises eyebrows **91** *23–26m/w* rudimentary *wb* See Moreau's Essay – He does not know this Essay The variability of Muscles of face stated by Moreau perhaps indicates the tendency to rudimentary condition in many & agrees with descent **92** *11–23w* nostrils distended in surprise & in

Careful observation This f true curiosity.– Perhaps owing to being startled. **93** *2u "Mm.|nasi", 3–5m/w* orifice of nose made smaller *13–16w* in bad smell shut nostrils with upper lip **96** *8–13w* by Laughter after powerful respiration goes back by starts; conversely in crying *9u "rückweises", 9u "Zwerchfell", w* diaphragm *15–24m/w* attributes respiration affected by emotions to nerves arising near sense-organs!!! **97** *1–18w* In fact he explains nothing about laughing or crying. *28–32m/28u "Zeichen|Innervation", wb* spasmodic action, want of force, the nerves which wd show during exertion of respiration **98** *wt* see Duchennes photographs *4–17w* In laughter & crying mouth opened wide speaks as if no difference in shape○!! **99** *2u "l,h,o", 4–6m/4u "p,q", 22–25m/23w* Smile **100** *6–12w* dimple caused by some muscles not extending to corner of mouth **101** *wt* Great laughter approaches to pain, thinks brows contracted!!! *1–4m/w* oh **102** *wt/1–13w* action of depressor alae nasi only difference between crying & violent laughing. I rather trust Duchennes; but how little known about muscles The action of this muscle is to narrow nose & says it can be easily perceived. *26–30m/w* This muscle does not contract in Babies **103** *14–17m, 22–34w* in Babies tears irritate eyes & surrounding muscles contract !!! oh oh!! Sir C. Bell **fig. 15** *w* Bad taste **fig. 19** *w* Horror **fig. 46** *w* excessive laughter **fig. 47** *w* still more excessive laughter, so as to have bitter expression

PISTOR, E.M.W. *Das Ganze der Feld- und Hoftaubenzucht* Hanau; C.F. Edler; 1831 [CUL, on B, S Ap. 10/56]
beh, cc, cs, f, he, hy, v

NB p.12–22, p.46
SB ❑β
15 Hybrids of Barb & Fan-Tail sterile Q
46 Lesser fertility of Dovecots only owing to less food
v *11m, 13m* **7** *wt* will not feed themselves *5–7m* **12** *12u "krumme"/10w* bowed *15–18w* carriers *27u "Augenkreis", 27u "weisswarzig", wb* white wattle & very big only differences **13** *14u "zwölf"/15u "zwei|besitzen"/14–16w* 12 to 32 **14** *3–5m/5w* will cross with Turbits & have both characters *16u "bläuliche", 19w* Jacobins **15** *12u "Ciprianer", 13w* Barb *19u "Hövchen"|Pfauentauben", 24u* ↔, *26w* like barbs but bigger *wb* Eggs of Barbs & Fantails sterile **16** *2–4!/3u "kurzen", 5w* Runts **21** *5m, 9u "dreht|Burzler"*✍, *15w* C. Coronata **46** *5–7m, 12–17w* owing to food

PLANCK, Karl Christian *Seele und Geist* Leipzig; Fues; 1871 [Down]

xviii *6m* **xxii** *43m*

PLANCK, Karl Christian *Wahrheit und Falschheit des Darwinismus* Nördlingen; Bech; 1872 [Down]

NB not read

PLANS of the various lakes and rivers between Lake Huron and the River Ottawa Toronto; John Lovell; 1857 [Down, I by M. Logan]

PLAYFAIR, John *Illustrations of the Huttonian theory of the earth* Edinburgh; Cadell & Davies; 1802 [CUL, pre-B, S]
geo, mi, t

NB 414 sand & gravel moving
⟨*CD?*⟩ 501; 511; 524 Theory & observation
viii *4–10m* **5** *4–9m* **6** *1–3m, 22–25m* **9** *7u "other|series"* **12** *18–20m* **13** *9u "Primary", 9u "Primitive"* **14** *26m** **15** *1–9m* **18** *1–5m* **21** *8u "pressure", 17u "increased pressure"* **22** *14m** **25** *19–27m/22?* **26** *6–10m* **30** *14–20m* **31** *1–4m* **32** *1–5m* **33** *1u "pyrites", 3u "the|fire", 4** **37** *18–21m* **39** *11m/u "trona"* **42** *24u "moved angularly"* **43** *4–5u "in|layers", 6–9m* **45** *1–5m* **46** *21–24m* **49** *16–20m* **51** *5–9m, 18–19u "breccia|between", 21–22u "is|general"* **5** *8–14m, 26–29m* **54** *7–16m* **55** *2–3u "expansive|heat"* **58** *20–23m* **67** *11u "spathose", 19–20u "series|gradations"* **68** *11–12u "This|former", 29u "so|whinstone"* **69** *5u "carbonat|lime", 8u "compressing force", 24–26u "hence|surface", 27u "whinstone", 28u "un-erupted lava"* **71** *22–23u "one|them"* **72** *11–15m* **75** *20–25m* **78** *10–13m, 20–24m* **79** *6–10m* **82** *4–9m* **83** *16–19m* **84** *14–19m* **99** *3–6m* **102** *18–26m* **104** *13–21m* **107** *1–5m/"..."* **114** *1–3m* **119** *21–26m/?* **125** *19–25m* **135** *6–10m* **144** *18–22m* **148** *6u "Buffon", 9u "A|mistake", 14u "omitting", 15u "coal", 15u "carbon"* **151** *22–24u "at|degrees"* **163** *15–21m* **167** *20–25m/24u "small|other"* **170** *17–21m/19–21u "it|formation"* **186** *14–15u "Friction|heat"* **189** *10–14m* **191** *14–16m/?* **195** *22m* **198** *7–13m* **208** *17–21m* **210** *5–20m, 23–27m* **211** *4–8m, 27–29m* **217** *11–17m* **222** *16–20m* **225** *19–23m/19–20u "have|soft"* **226** *1–3m* **227** *11–16m* **240** *13–16m* **242** *25–27m* **243** *1–2m* **246** *23–27m* **248** *11–14m* **256** *2–4m* **258** *22–26m* **263** *19u "large|terraces", 22–23u*↔ **265** *9–13m, 19u "granite", 20u "basalt"* **267** *14u "extinguished volcanoes", 17u "fire|mineral"* **283** *12–17m* **284** *21m, 27–28u "that|which"* **285** *1–18m/1–2u "is|other"* **294** *2–8m* **296** *12–24m* **298** *16–19m* **304** *17–19m/18u*

"plumbago" **336** *11u "schistose", 15–20m/18?/19u "fluidity"* **338** *23–27m* **340** *1–4m* **351** *21–22m* **362** *13–23w* explained ice theory **364** *7–10m/8w* ice **371** *10–16m* **373** *1–4m, 15–19m* **374** *13–17m, 24–27m* **377** *8–11m* **378** *10–14m, 23–28m* **390** *11–14m* **393** *1–3m* **394** *17–28m, wb* Geneva Stone angular **399** *11–19m* **401** *17u "is|we"/w* retiring sea **414** *20–29m* **417** *23–27m* **488** *14–22m/"..."* **494** *17–26m (Buffon)* **497** *1–8m* **499** *15–16m, 21–28m* **500** *1–5m* **510** *13–17m* **505** *18–24m* **506** *1–14m* **511** *5–6m* **512** *20–25m* **518** *1–4m* **521** *11–13m* **523** *17–21m* **524** *24–27m, 28–29m* **525** *1–7m, 8–19m, 21–28m* **526** *1–6m*
⟨other markings here and there not by CD⟩

POMPPER, Hermann *Die Säugethiere, Vögel und Amphibien nach ihrer geographischen Verbreitung* Leipzig; F.C. Hinrich; 1841 [CUL]
gd, is, v

NB 1 Lepus variable Iceland
p.5 Animals of Greenland & not Greenland
⟨lists follow⟩
title page *wt* Nothing **1** *21–23m/23u "Island"* **5** *7–8m/7u "M.|Grönland", 9–11m/10u "auch|Grönland", 14–15m, 16u "Grönland", 17–19m/18u "C.|zwischen"/19u "nicht|Grönland"*

PORCHER, F. *Du Fuchsia, son histoire et sa culture* Paris; Audot; 1844 [CUL]
f, sp, v

NB Oct 1857 O Nothing
3; 94; 98 Read; 105; 35; 95 722 vars 34 species
title page *10w* Porcher p. 102 **3** *3u "trente-quatre", 5w*♦**35** *32u "Constellation", 33–35m/34u*♠ **93** *20–33m/21u*♠*, wb* Corallina not in list! **94** *6–8m* **97** *24–26m* **98** *9–12m* **101** *37–38m, wb* How fruitful Corallina has been **102** *22–24m* **105** *16–20m/17u "tube|nul"*

POSNETT, Hutcheson Macaulay *The historical method in ethics, jurisprudence, and political economy* London; Longmans, Green & Co.; 1882 [Down, I]

POUCHET, Georges *The plurality of the human race* trans. of 2nd edn by J.C. Beavan; London; Longman, Green, Longman & Roberts; 1864 [CUL]
h, is, pat, sp, t, tm, wd

NB 50
SB ❑β
50 Aegyptian types not so distinct
60 Negros Yellow Fever
♦ 83 Pouchet has argued at length that domestic animals are quite different take easily plants removed to new isld
♦ About Will of Animals being destroyed – does not apply to plants
114 & 118 Remarks on Species Theory of no value–
114 Definition of Species

50 *2–12m* **60** *28–44m* **83** *3–19m (Cuvier and I. Geoffroy St Hilaire)* **114** *1–6m, 16–23m (Buffon)* **115** *1–4m* **118** *30–33m* **119** *11–20m*

POURTALÈS, Louis François de *Illustrated catalogue of the Museum of comparative zoology, at Harvard College. No. IV: Deep-sea corals* Cambridge (Mass.); Museum of comparative zoology; 1871 [Down]

POWELL, John Wesley *Inroduction to the study of Indian languages* 2nd edn; Washington; Government printing office; 1880 [Down, 2 copies]

POZZI, Samuel *Du crane* (extract); Paris; 1879 [Down, I]

PREYER, Thierry William *Die Blausäure* 2 parts; Bonn; Max Cohen & Sohn; 1870 [CUL]
che, in

part 2 NB1 I cannot find place where said that different individuals are differently susceptible to P. Acid
NB2 Not read

PREYER, Thierry William *Die Blutkrystalle* Jena; Manke; 1871 [Down] ℘

PREYER, Thierry William *Das myophysische Gesetz* Jena; Manke; 1874 [Down] ℘

PREYER, Thierry William *Naturwissenschaftliche Thatsachen und Probleme* Berlin; Gebrüder Paetel; 1880 [Down] ℘

PREYER, Thierry William *Die Seele des Kindes* Leipzig; Th. Grieben; 1882 [Down, S]

PRICE, John *Old Price's remains* London; Virtue Brothers & Co.; 1863–64 [CUL] ℘

PRICHARD, James Cowles *Researches into the physical history of mankind* 3rd edn, vols. 1 and 2; London; Sherwood, Gilbert & Piper; 1836 [CUL]
beh, cs, f, gd, h, he, hy, oo, pat, sp, sx, tm, v, ve

vol. 1 NB1 *w*◆
NB2 ◆ Alpine Botany of do
The entomology of Tierra del Fuego with respect to Europe – Patagonia to S. Africa must be well studied–
Vol. 47 Zoolog Soc about contagious diseases my Father about diseases common to animals.
The Highlands & Western Isles in Letters of Walter Scott: 4 Vols
W. f D. Edwards sur les Characters des Races Humaines
Lesson Hist. Nat. des Mam. often quoted
NB3 ◆ p114 Lyell's mark
14 to 56 all worth reading again – to 164. 174
ask Henslow to put name in my catalogue.– March. 1857 I have not looked through all these, but I have gone through the later Edition
206; 216; 220
225 on ☞✐ Blushing & 271 – Good
242,4; 258; 264; 266; 286; 288; 305; 311; 314; 318; 333; 334; 340; 350 to end of Vol
done Feb 25/01 ⟨*FD*⟩

xii *36–38w* this not in Ed ii **xiii** *36–37w* =p130 Ed ii **xv** *29w* =192 Ed 2 **14** *27–32m/?* **15** *3–5m, 11–19m* **17** *39m (Rudolphi)* **21** *27–31w* singular/catacea/converse of antiquity *31–32m*◆*/w* Latin **24** *2–39m* **25** *1–8m, 26–30m/w* How does my collection show this *31–32w* a great difficulty *35–36w* I suspect not so **26** *24–32m/28–30m* **29** *1u "analogous species"/1–4m/w* in a limited sense.– *7–22m (Humboldt, Robert Brown)/11–12w* insects forms **30** *3–12m (Humboldt), 7w* B **31** *7–10m/w* Waterhouse similar remark *29–34m, 35–37w* Tell Henslow **35** *22–28m/27w* aquatic? **37** *22–28m (Rudolphi)* **43** *6–13m (Rudolphi), 15–17m, 23–28m* **44** *12–20m* **45** *1–3m/?, 38–39m* **50** *1–7m (Linnaeus)* **51** *1–39m* **52** *1–38m (Humboldt, A.P. De Candolle)* **53** *1–5m* **57** *23–28m/24u "the | no", 37–38m (Latreille)* **58** *1–11m* **60** *37–38m/37u "Quarterly Review, vol. 47"* **61** *6–33m (Lyell)* **63** *38m (Lesson)* **64** *34–36m, 36–39m* **66** *wt* consult Beales Book *1–15m* **67** *3m, 6–9m, 39m/u "Gmelin | Amoenitat."* **68** *17–30m* **73** *20–27m/24–27m (Lesson), 35–37m* **74** *18–23m/19u "chironectes"/?, 32–37m/35u "parameles", 35u "New Guinea"* **77** *26–33m* **80** *10–14m* **82** *10–23m/14–17w* Flying squirrels in N. America **84** *16–20m/16u "The | everywhere"* **85** *3–11m/4–6w* Relation to trees?? **86** *11u "Moluccas"/w* ! Baluchian **89** *34–35m/36u "Annales | vii", 38–39m (Cuvier)* **90** *38–40m* **93** *9–11m (Lesson)* **95** *11–13m* **105** *6–20m/6!!!, 7u "definite", 8u "separate origin"/10–11?!!!/11"..." "always"* **106** *4–19m (A.P. De Candolle)* **107** *31–40m (A.P. De Candolle)* **108** *36–37m (Geoffroy St Hilaire and Serres)* **112** *1–4m, 33–39m/35–36u*↔ **115** *18–25m, 31–33m* **118** *23–29m* **119** *36–38m* **130** *11–22m, 29–36m, wb* I have heard of some facts different from this **138** *36m (Rudolphi)* **139** *37–38m (A.P. De Candolle)* **144** *37–39m* **145** *24–27m/?? (Gaertner)* **149** *9–13m* **153** *30–36m* **155** *12–21m* **156** *19–31m* **157** *31–36m, wb* In Malcolmson's Pamphlet is there not something about goitre peculiar to races **158** *1–5m* **163** *2–37m* **166** *37–38m (Jacobi)* **174** *4–8m* **175** *6–31m/31u "everywhere", 36m (Hancock), wb* Anafuras have no such beliefs **176** *1–39m* **180** *28–31m/29u "voyager Kolben", wb* consult for Cattle &c see p.182 **183** *5–10m* **216** *26–31m* **220** *30–33m* **225** *31–33m/32u "par | honte"* **242** *20–23m* **243** *17–32m, 17–19w* Consult Rengger *22w* when? *29u "permanency | breed"/w* how long? **244** *1–7m/w* strongly versus Walker; if considered races *32–33m, 39m* **245** *9–15m/13–15m, 19–21m, 27–31m, 37–38m* **258** *31–35m* **264** *16–20m* **266** *10–14m* **271** *18–22m* **286** *10–15m, 17–24m* **288** *27–33m* **304** *38m (W.F. Edwards)* **305** *11–15m* **311** *26–30m* **314** *21–32m* **318** *12–21m/12–13?* **333** *6–11m, 21–29m (Vrolik)* **334** *18–22m (Owen)* **340** *18–29m* **341** *1–11m* **350** *31–39m (A.P. De Candolle)* **351** *38m (Pallas)* **352** *29u "by | organs", 27–30m, 27w* retriever ! *38–39m (Meckel)* **354** *4–25m, 27–37m (Buffon)* **355** *1–34m (Blumenbach)* **356** *5–10m, 10–36m (Blumenbach and Cuvier)* **357** *1–28m, 29–31m (Pallas)* **360** *31–37m* **361** *wt* I have note of small sheep on Red Sea *1–2m* **367** *30–39m* **368** *23–30m* **370** *9m, 10–13m/w* This being cross, father ought to have given *20–27m/w* Mr. Walkers Theory!!! The father here gave only part of cuticle!!! *30–40m* **371** *23–28m* **374** *6–11m/8–9?* **375** *10–12m/u "separate | economy"/10–13m/w* assumed *17–20m/?, 31–39m/?* **facing 376** *4–18m (Prichard)*

vol. 2 NB March 1857 I have not looked through.–
2; 3; 10; 33; 95; 97; 141; 175; 181
197 All before Chapt X: very dull This whole Chapt. amusing
207; 210; 221,2,3,6; 264; 275; 278– is this true; 323,5; 329; 331; 336,8; 340 whole section; 344 –copied FD; 348 Done FD
SB ⟨*by FD, referring to 2nd edn, vol. 2 & 4th edn, vol 4*⟩

2 *3–8m* **3** *34–36m (Lacépède)* **10** *31–33m* **33** *3w* Galapagos *7u "abounded | size"/5–8m/w* New Zealand *9w* Gap **95** *33–34m* **97** *4–37m* **141** *16–20m* **154** *9–16m* **175** *34–37m (Rüppell)* **181** *19–32m/25–26m* **197** *wt* The case of African nation which has grammatised its language from the Arabian has been mentioned, so much so, that it might be mistaken for Semitic dialect *15–18m* **207** *19–22m* **210** *38–41m* **221** *26–28m* **222** *1–38m* **223** *1–39m/39u "purposely framed"* **224** *1–8m, 13–38m/15–20m/14–17w* What evidence? **226** *2–14m* **264** *25–30m* **275** *29–31m* **278** *14–21m, 28–30m* **279** *4–5m* **323** *1–16m* **325** *9–22m, 25–38m* **329** *34–38m* **331** *17–22m* **334** *wb* ● **336** *17–24m* **338** *7–34m, 36–39m* **339** *1–4m, 19–27m* **340** *1–4m* **344** *5–13m/8–9"..."* **345** *17–21m* **348** *24–35m*

PRICHARD, James Cowles *Researches in the history of mankind* 3rd & 4th edns, 5 vols.; London; Houlston & Stoneman; 1841–51 [CUL]
beh, cs, f, gd, geo, gr, h, he, hy, is, mg, mn, no, pat, sl, sp, sx, ta, ti, tm, ud, v, ve, wd

vol. 1 NB1 ⟨*note on Mendel by FD*⟩
NB2 Blumenbach de Unite de Genre Humain
Blumenbach Beytrage zur Naturgesichte & Meckel Traite general de Anatom Compr Must be read Has not Erasmus one of their works
Pallas Spicilegia Zoolog
p311,320✐
271 Blushing said to have been acquired by Negros○ ⟨*passage in text is about Amerindians*⟩
SB1 Prichard Vol I p.23; 26; 33; 41,42; 61; 84; 87; 90; 94; 112; 115; 133; 141; 144; 153, 163; 175; 224; 228; 245; 271; 311; 316
How like my Book all this will be.
I must read some Book on geograph distrib of insects or of one great class
p.321; 322 & p.324 & 331 on relation of body, pelvis & Head
311; 334; 340; 345; 349; 351; 353; 366; 370
SB2 ❑β
23 S. African plants in Europe (Glacial?)
42 quotes Lyell & Keith on seeds in Baltic from Germany do. 61 Eding. Phil. Mag. 1832 on Distribution of Parrots
84 Bat in Sandwich Isld 87 Pteropus keraudren at Marian & Oualan; at Tonga peculiar species
90 Australian Dog same as that of N. Ireland M. Lesson N.Q.
141 Sparrmann says hybrids of common & Aethiopian Hogs fertile
144 It seems Buffon was strong on repugnance to 2 species to cross
155 On Heredetary Plica Polonica – on races of Man becoming predisopsed to disease in certain countries

163 do♦ on diseases of Hot countries
224 Albinos subject♦ sensible to bite of flies
245 Good Heredetary cases of toes & fingers – Heredetary rudiments
311 X✐ Nasal cavities large in American skulls, Blumenbach connects with high smelling powers
321 X✐ Cox says flattened head "an essential point in Beauty" in American Indians
324 Vrolik says shape of Pelvis must have some influence on that of Pelvis♦✍ Head✍ 331 333
334 Lumbar vertebrae sometimes six in Negro
341 In Tobolsk Cats generally red Q
343 Skin & hair go together in colour – Sheeps Mouths black when ♣ hair black
345 On complexion & temperament.
349 Porcupine Man coming on at same time in him & children
353 Blumenbach on some strange vars of Pigs – Marcel de S. on skeletons of dogs & wolves Eding. Phil J July 1835 p.244
356 Feral horses of Pallas in Siberia. Dun or brown Q||✎

23 *16–18m/w* N. Migration during cold Period *16–20m, 20–25m* **26** *3–10m* **33** *38–41m* **41** *27–35m (A.P. De Candolle)* **42** *26–29m/w* Fundus maris semina non destruct **43** *28–29m* **44** *39u "marine birds"* **58** *19–22m (Latreille), 36–39m* **59** *36m (Illiger)* **61** *36–37m* **84** *8–10m/9u "small crepuscular"* **87** *4m/4–5u "has | Oualan"* **90** *31–33m (Lesson)* **94** *25–28m (Buffon)* **112** *29–39m* **115** *3–9w* who can tell – it is begging question to say constant. *11–12m, 19–23m* **133** *9–12m, 21–23m* **141** *13–14m, 37m (Sparrmann)* **144** *35–37m* **153** *31–35m* **155** *6–10m/10u↔, 11–15w* The point to show is that a race by living in district long may acquire hereditary tendency *14–21m/w* proof of peculiarity acquired by certain race in certain area *24–25m, 26m, 33–38m/37–38m, 39m* **156** *1–6m, 8–16m, 23–30m* **157** *18–21m, 27–29m, 32–33m, 36m* **158** *1–4m* **159** *6–10m, 36–37m (Winterbottom)/36–38w* would be worth reading *38–39m* **163** *3–9m* **175** *1–3m* **224** *35–39m* **225** *30–34m (Buffon)* **228** *6–18m* **245** *7–16m/11u "rudiments of"/15u↔/11w* Heredity *17–21m* **271** *17–21m/w* no doubt wd increase tendency **311** *1–3m, 28–35m* **316** *12–17m (Tiedemann)* **317** *39m* **318** *16–22m* **320** *22–25m* **321** *7–9m, 7–8u "They | point", 18–19u "Dublin | 1834"* **322** *16–18m* **324** *3–10m (Vrolik)* **331** *26–29m/w* see references to Book p324 **333** *25–28m/w* p281 for main character of skulls *26u "oval shape"/w* do.

head *28a "oblong"* do. head *28a "Mongolians"* do. head **334** *19–21m* **340** *40m (Blumenbach)* **341** *16m (Gmelin)* **343** *5–8m, wb* over **344** *33–35m* **345** *14–16m, 17–21m* **347** *21–23w✍¢¢, 29u "bark | hide"* **348** *11–13m, 21–26m (H. Baker)* **349** *7–9m, 21–24m (Lawrence)* **351** *7–9m/7u "J.F. Meckel"* **353** *13–20m, 33–35m (Serres), 36u "Beyträge | ubi", 38m* **354** *14–16m, 18–20m* **355** *18–21m (Blumenbach)* **356** *6–7m/6u "dun | brown"* **366** *18–23m* **367** *36–37m* **370** *32–36m/w* Piebald

NB [done FD Feb 25/01]
vol. 2 SB1 p33; p45; p181; p334
SB2 ❑β
33 Dogs & Goats in Canaries – Cada.Mosto discovered C. de Verdes
181 To produce effect on race by crossing, the two parent races must be nearly equal in number.
334 Reference to table of complexions by Esquirol, <u>possibly</u> may allude to liability to disease (But it was madhouse)

33 *9–13m, 30–32m/31w♦/u "Cadamosto"* **35** *22u "bandages | skin"* **45** *23–32m* **46** *6–9m* **47** *7–12m* **181** *20–31m* **334** *31–34m*

vol. 3 NB O/

vol. 4 NB *⟨w✍, not CD⟩*
[FD copied] p103; 243 –X not N. Sel; 407; 413; 423; 454xx; 477; 492; 519x Beauty; 525; 529 – ext condus
530 common mule (c of Ass & Horse) shows that no great variability or appearing of new characters in Hybrids
534 537 Beauty 539 Climate✍ 616
SB ❑β
103 Date of Vedas 1343 B.C. 477 History of China 2200 B.C.
407 X✏ on shape of Head in relation to senses
454 X✏ On variability of chief characteristics of each Race of Man 519, 530
519 X✏ Chinese admire Chinese beauty 534 so Siamese 535 Cochin China 537

103 *6–12m/8w* concludes **243** *30–39m/34–36m* **407** *19–21m, 23–27m* **413** *6–10m* **423** *1–5m* **454** *21–23m/21–38w/wb* so darkness variable in Hindoos – Bump in Hottentot, & I think many other particulars which I have <u>omitted</u> to mark, wd require selection to separate. There was something on skull of Australians. So shape of Pelvis.– Shin Bone of Negros? **476** *18–26m, 31–37m (Rémusat)* **477** *4–7m, 10–12m* **492** *22–25m* **519** *12–13m (Barrow)/u "the | nose", 15u "high | bones", 17–18m, 24u "Pallas", 25–29m, 39m* **520** *2–5m/5u "short | flattened", 15–16m/15u "hands | feet"* **521** *34–35m* **525** *10–19m* **529** *6–10m* **530** *35–38m* **533** *30–36m, 38–39u "features | bold"* **534** *1u "small", 2u "nostrils", 4u "rather thick", 8–13m/9u "breadth | of", 13u "large", 27–28u "beauty | them", 29–30u↔/29–32m/w* Siamese **535** *4u "Cochin China", 26u "globular", 27u "orbicular | face", 33–35m/w* Cochin China *39m* **537** *21–26m* **539** *22–28m* **615** *13–15m*

vol. 5 NB 67 Beauty
SB1
X✏ 67 Beauty
146 Drift wood Easter Isd
168 Spaniards introduced Stag, Mariane Isd? From Freycinet. Lib 3. p.270
283 Differences of Oceanic People – 292 N. America – Man in a Polymorphous condition.
419 Mandans grey-hair
463 Chest & Body of Indians
✔✏ 476 Beauty
542 Differences in American Races
✏ X 145 Difference low level Islets & High Volcanic Isld–
⟨over⟩ ♦✏, ➡♦
In my note on Man – Ask what makes any peculiarity not always heredetary; then why shd not this cause act & react.– Effect of civilisation on poor children & rich.– Hair & colour – Polymorphous state Geographical reprentatives most difficult to decide whether to call vars. or species.– Moral ♣ restraints – (Spreading not like spreading of other animals?) Allude to Pritchard on colour &c
➡♦, ♦✏
Mans Sexual characters like tufted Ducks.–
First○ spreading out even○ families wd be part○

67 *16–21m/19–21m, 22–25m* **141** *18–21m* **144** *32–36m* **145** *2–7m, 21–29m* **146** *33–36m* **168** *30–35m* **283** *6–10m (Foster)* **293** *17–29m (Morton)* **418** *31–35m* **476** *35–37m (d'Orbigny)* **542** *28–33m (Humboldt and d'Orbigny)* **543** *17–23m (d'Orbigny)*

PRINCIPLES of organic life London; Robert Hardwicke; 1868 [Down, S]

NB O/
℘

PROCTOR, Richard A. *Pleasant ways in science* London; Chatto & Windus; 1879 [Down, I]
geo, oo

NB p379 Dust important for Worms
379 *wt* But this cannot apply to a whole country *6–37m, wb* St Jago When covered

with vegetation ♣ very little dust raised **380** *1–2!, 26–37m/30–35m/13–35w* But clay○ must have been taken from one part to another

PROCTOR, Robert *Narrative of a journey across the Cordillera of the Andes* London; A. Constable; 1825 [Christ's College Library, on B, S]

NF Have read as far as the pages are cut
✍ ● X Vizcacha Azara ●; Biscacho – Proctor; Cachia Caldcleugh; Cuvier Viscatcha
15 *wb* Gau ⟨*for Gauchos*⟩ **368** *wt/1–2w* Gua Gua Gau quipos Gau

PSYCHOLOGICAL ENQUIRIES (published anonymously by B.C. Brodie); London; Longman, Brown, Green & Longman; 1854 [CUL]
beh, ch, gd, gr, h, or, phy, t, tm, ud, ve

NB1 Emma 104
NB2 ✍ much good on man
p166; p183,4; 186; 190; 192; 194; 196; 198; 203
p.196 Man wd not spread beyond Tropics till fire invented nor very widely, perhaps, till Boats?
Perhaps first Learnt in a Volcanic region, with lava flaming things around
SB ❑β
188 Q Good case of Bees building comb beneath a fallen hive temporarily
192 Moral sense due to Social Instinct p203
195 Man must have had more instincts when first Produced
199 Q An acquired habit converted into instinct show change in Brain

166 *13–19m* **183** *19–22m* **184** *20–23m/?* **186** *5–9m* **187** *18–22m* **188** *13–19m/17..."* **189** *24m (Dujardin)* **190** *23m* **192** *16–18m, 17–24m* **194** *21–24m* **195** *4–8m, 15–18m* **196** *14–18m* **197** *21–22m/u "instinct of self-preservation"* **198** *5–7m* **199** *18–21m* **203** *7–10m, 22–24m*

PUBLIC LIBRARIES in the United States of America Part 1; Washington; Government printing office; 1876 [Down, S]

NF 419–442; 476–504
℘

PUGIN, Augustus Welby *Contrasts or parallels between the noble edifices of the middle ages and corresponding buildings of the present day* London; Charles Dolman; 1841 [Down]
℘

PULTENEY, Richard *A general view of the writings of Linnaeus* London; J. Mawman; 1805 [Botany School, pre-B, ED]

PUSEY, Sidney Edward Bouverie *Permanence and evolution* London; Kegan Paul, Trench & Co.; 1882 [Down, I] ℘

NB All mere rubbish

PUTSCHE, Carl Wilhelm Ernst *Taubenkatechismus* Leipzig; Baumgartner; 1830 [CUL, on B]
no, v, wd

NB ✍ Nothing March 1857
p27; p30
iv *16–19m/17u*↔ **v** *6–8m/6u "dreyssigjähriger"* **vi** *9u "Leipzig", 9–10w* I have **22** *19u "Montauban", 20–22w* Leghorn Rump scanderosus &c **23** *9w* Carrier **26** *9m, 32u*↔*/31–32w/wb* Almond Tumbler has been reduced in England **27** *14–15u "auch | ihnen"/w* Turbits *28–30m/28u "1573"* **30** *21–24w* same as spots **31** *22w* with a mane **32** *13–24m/w* Swallow-Pigeons thus seem to be domesticated

PUVIS, M.A. *De la dégénération et de l'extinction des variétés de végétaux* Paris; Huzard; 1837 [CUL]
ch, che, cs, dg, fg, phy, sp, t, ta, ti, v, wd

NB p1–41→ chiefly on old vars of Fruit-trees dying; 48; p.63,5; 76–79; 82
SB 36 on apples half one sort, half another. Attitude to direct fecundation
37 on genera varying in having only single species Q
41 on vars. of Peaches within recent times
76 on certain fruit-trees coming true
77 81 in cultivating a number of Cereals, all those near each other, were greatly modified in garden of Society – attributed to crossing but I doubt Q
⟨*over*⟩ ◆
p10 M.S. reference to Lindley on grafting

5 *8–10m/w* Fruit-trees **15** *11–16m, 18–21m* **22** *27–31m* **15** *11–16m, 18–21m* **22** *27–31m* **25** *25–28m* **30** *1–8m* **31** *1–5m, 10–13m* **34** *10–15m* **36** *1–7m, wt/1–4w* attributes all variation to crossing *11–12m, 19–23m*✎ *(A.P. De Candolle), 24–26m, 27–32m*✎ **37** *wt* Maize Rice Potato *1–4m, 1u "principalement", 4u "kolreuteria", 3u "seigle"/w* Rye *5–6m, 7–8*Q *11u "platanes", 12u "encore entr'eux"/9–14m/w* Ch 4 Big grain & small grain – *13–15m, wb* The Variation in Fruit-Trees shows that many generations are not necessary to cause variation **39** *20–28m* **41** *1–4m, 11–14m* **48** *19u "Annales"/19–21m (Sageret)* **49** *5–8m* **63** *20–23m* **65** *4–10m* **76** *2–4m, 15w* cultivated *15u "franche", 16–18m, 19–21m, 24u "prune", 31–32m* **77** *1–2m, 9–11m, 21–23m, 24–29m* **78** *3–7m/w* chemical change *18u "été"/9–18w* Thinks it all due to crossing affecting the very grains. **79** *11–14m* **81** *23–26m* **82** *wt* spell. Dict. French *1–3m/1u "épeautres", 8–11w* ask about Aegilops *12–15m* **83** *10–12m*

QUADRI, Achille *Note alla teoria Darwiniana* Bologna; Giuseppe Vitali; 1869 [CUL, I]
ad, ex, fg, is, no, sh, t, ts

NB1 p26♦; p.28 <u>very good</u>; Struggle for existence
NB2 ⟨*not CD*⟩
SB Ch2 p37; 3 p105; 4 p137; (I have not read)
28 *wt/1–9w* (a) Prophesied that Culicidae wd be rare on account of vast number of Empitae, & these abounded because Water-beetles sick & very rare *9–30m/w* (a) *32–35m/34w* (b) *wb* (B) Land-shells devoured by Mice – one kind protected by Carduus – like plants on commons by Thorns – Beans on shells in islands, where no mice, lately exterminated → **29** *wt* He classes the relations of the Economy of Nature 8–9m/4–21w The more perfect the organism the less Evolution (external) *wb* Mr Traherne Moggridge remarked to me that he cd find seed of Legum. climbing plants only when dropped among thorny plants, in all other places devoured

QUATREFAGES DE BRÉAU, Jean Louis Armand de *Charles Darwin et ses précurseurs français* Paris; Germer Baillière; 1870 [CUL, I]

NB ✐ O/
℘

QUATREFAGES DE BRÉAU, Jean Louis Armand de *Études sur les maladies actuelles du ver à soie* Paris; V. Masson; 1859 [CUL, I]
ad, beh, br, em, ex, gd, he, mn, oo, pat, rd, sl, sx, ta, v

NB 12; 31; 101; 209; 214; 304; 321
SB ❑β✍
Q✎
12 & 214 do One knows that everywhere in France white races have resisted disease better than yellow.– [It may of course have been accidental coincidence]
31 Disease Hereditary The old races promptly disappeared from whole country
101 <u>Great</u> care is <u>always</u> taken in selecting cocoons for breeders.
209 a breed of which females had much finer & not so monstrous wings ♣ as in the South–* certain black caterpillars resist disease much better
214 some breeds have lost property of attaching eggs to any support
304 <u>Often mere rudiments of wings</u> ⟨*u*✎⟩ – doubtful whether due to disease
321 an account of diff vars. of Mulberry with leaves of different qualities some only fitted

for caterpillars in latter stages; Hence selection might easily come into play – as the stiff-leaved vars could exterminate a species.– No doubt judging by our oaks only the more delicate trees wd be thus exterminated.

12 *27–28m* **31** *18–20m* **101** *21–24m* **209** *1u "vers | Jean", 17u "plus | dans", 18u "sont | étalés", 25–28m* **214** *14–15m, 16–17m* **217** *26–29m* **304** *1–13m/7–8*Q **321** *4–12m/6–9*Q*/8–9m/9u "qu'on | davantage", 14u "assez | découpées", 15u "feuille | plus", 19u "laquelle | ramassage", 23–26m/25–26m, 29m*

QUATREFAGES DE BRÉAU, Jean Louis Armand de *Histoire naturelle des annelés* 2 vols.; Paris; Roret; 1865 [Down, I] ℘

QUATREFAGES DE BRÉAU, Jean Louis Armand de *Métamorphoses de l'homme et des animaux* Paris; J.B. Baillière & Fils; 1862 [CUL, I]
cc, em, fg, gd, mn, oo, phy, sx, t, tm, v

NB 32; 79; 84; 94; 99; 103; 113; 118; 122; 129
SB ❐ℜ ⊷
32 Embryology
79 do
84 – Destruction of caterpillars by Ichneumonida
94 – Neuter insects
99 4 forms of successive Respiration in Frogs
103 do.
113 Retrograde development
118 F.W. Molluscs no metamorphosis
122 Embryology
129 Period of monstrosity X
174 alternate generations
251 True generation always necessary
280 Parthenogenesis in Wasps
299 do.
293 do.
312 & 315 & 317 Embryology

32 *8–16m* **79** *17u "quatre formes"/13–25m (Fabre), 28–34m (Joly)* **84** *27–30m* **94** *21–24m/1–24w* I doubt – will not explain two castes of ants **99** *21–30m/18–30w* four forms of respiration **100** *1–9m, 19–25m* **103** *1–6m, 8–24m* **104** *22–32m* **107** *31–34m* **113** *23–27m/23w* Lernaea **118** *wt/1–2w* Why ? No food *23–27m* **119** *13–16m* **121** *27–30m* **122** *24–29m* **129** *4–8m (Meckel and Geoffroy), 13–23m/7–19w* so with all variations *28–30m* **174** *12–30m* **251** *12–19m* **280** *4–11m (Leuckart)* **282** *12w* ovipary **290** *9–14m* **293** *6–13m* **312** *18–22m* **313** *9–12m* **315** *4–7m* **317** *29m (Dufossé)*

QUATREFAGES DE BRÉAU, Jean Louis Armand de *Nouvelles recherches faites en 1859 sur les maladies actuelles du ver à soie* Paris; Victor Masson; 1860 [CUL, I]

NB O/1860

QUATREFAGES DE BRÉAU, Jean Louis Armand de *Physiologie comparée. Les métamorphoses* Paris; Estrail de la Reine des Deux Mondes; 1855 [CUL, I]
ad, cc, ct, em, fg, in, no, sx, t, ta, v, y

SB1 ❐β
In insects variation cannot come on till later in life– so no necessity for coming on early The case may be early if measured by year towards close of life.
85; 96; 102; 118; 121; 125; 126; 134; 136; 138; 140 Hermaphrodite Fish.
By the enormous increase of individuals by gemmation in animal & vegetable kingdom number of eggs increased, & at times of year when perhaps not good for seeds or eggs to be produced–
SB2 ❐β
96 great differences in Metamorphoses of closely allied Polyps
125 Transformations, Metamorphoses, genea-genesis.– all forms of Metamorphosis
138 Summary of do
140 Serranus Hermaphrodite Fish
N.B. In an ephemeral insect how late a variation appears in life as measured by time – though the causes may act at a very early period

85 *26–41m* **96** *7–14m (Löwen)* **102** *23–29m* **116** *9–11m* **118** *18–24m, 28–32m* **121** *1–6m, 21–25m* **123** *1–10m (Owen)* **125** *5–11m* **126** *23–25m/20–34w* This after all turns on metaphysical point of what is individual. *37u "monogénèse", wb* In young Anodon wd it be mono or digenesis – the cases blend together **127** *15m, 22m (Carpenter)/u "son | fond"* **128** *3–4m, 6–9m/w* just as I thought **129** *3–7m* **134** *16m, 26u "n'aura | germe"/w* No *27–31w* His own case of Moths.– **136** *17–21m* **137** *35–37m* **138** *1a "oeuf"/wt* & the young organisms adapt to external. conditions *2–8m, 37–40m* **140** *40–43m (Dufossé)*

QUATREFAGES DE BRÉAU, Jean Louis Armand de *Souvenirs d'un naturaliste* 2 vols.; Paris; Charpentier; 1854 [CUL]
af, ch, dg, em, gd, no, or, phy, sx, t, tm

vol. 1 SB1 vol 2 p.184; p.193; p.278; p.338
vol I p.116; p.121; p.123; p.135
p.254 works out well particularly of laws of

propagation in animals & vegetables.–
p296; p.306; p.308; p.321
SB2 ❑β
121 On division of labour, 297
137 Great size with degradation in Nemertes
vol 2 193 simple eye of Annelid
338 On important change in one part not compelling changes in other parts, with good remarks against the subordination of Characters of Cuvier

116 *2–6m/4–5w* analogue **117** *18–23m* **121** *wt* How applicable to Plants – Shark & Salmon & Pike The mere facts of being less like Reptile makes more Fish-like *1–4m, 7–10m/9u "inférieur", 24–25m (Milne Edwards)* **122** *11–15m/11u "types", 17–21m/20u "plan général", 23–25!/23–24u "le | branchie"* **123** *5w* Lamprey *22–26m* **135** *15–18m, 26m* **137** *3–6m, 25–26m* **139** *14–20m/16w* Fish? *26m* **140** *3–5m* **257** *18–22w* The leaf buds are ♣ larvae **295** *24–26m* **296** *1–11m* **297** *24u "il | ans"/23–25m (Milne Edwards), 25–26m* **306** *1–7m* **308** *22–26m* **309** *3–8m, 19–22m* **321** *10–22m/22u "réunis", 23m/w* Land *24w* some Rotiferae are bisexual *26w* Land *27u "Turbellariés"/w* Land *29–32m (van Beneden), wb*♦ There have been land-forms produced because such has been possible owing to these being M All wrong

vol. 2 NB1 40; 48; 52; 64
NB2 40; 48; 52
NB3 O✎
40 *17u "représenter"* **41** *26m* **43** *9–14m* **52** *13–17m/13u "parenté zoologique", 16–21m, 23–24u "d'identité apparente"* **53** *2–4u*↔ **62** *10–13m* **64** *4–8m* **184** *1–7m* **193** *1–13m/3u "partout | centre"* **278** *6–15m/10–11w* Teredo **338** *2–23m, 15–18m, 24–26m* **339** *1–5m (Jussieu), 9–16m, 20–21m*

QUATREFAGES DE BRÉAU, Jean Louis Armand de *Unité de l'espèce humaine* Paris; J. Claye; 1861 [CUL]
beh, br, ds, em, h, hy, phy, sp, v

SB1 ❑β
20 Man. Language
31
39– ✍ Definition of Species
Some truth to similarity, some truth to descent alone
52; 53; 57; 78; 119; 152; 156; 158; 161; 169; 205 a Book on Health of World
Americans altering looks like conditions
Whatever produces 6 fingers, could if prolonged produce six.–
Nothing important
Jan 1861 Quatrefages on me

SB2 ➾
20 Compares Languages of Man & of Animals
152 Results of crossing Primrose & Cowslip
156 on the crossing of 2 species of Camels. doubts thrown on.– & 2 species of Guanaco.
158 on the sheep & Goats of Chile.
161 Naudin on Law of Return of Hybrids – I doubt – It is certain that he does not believe much in insects.–

19 *11–16m* **20** *28–35m* **21** *21–23m/22u "caractères moraux", 26u "vertu | vice", 37–41m, 43u "se | généralement"* **31** *27–30m, 31–38m, 40–41m, 42u "compagnie"* **32** *9–14m* **33** *1–6m* **39** *20–25m* **52** *31–38m (De Candolle)* **53** *26–34m, 35–40m (Linnaeus)* **54** *34–39m* **55** *33–40m (F. Cuvier, I. Geoffroy St Hilaire)* **56** *3–9m* **57** *6–12m (Sageret)* **59** *21–22m* **69** *29–33m* **78** *12–15m* **79** *24–36m (Geoffroy)* **88** *14–21m (d'Orbigny)* **93** *40–41m* **95** *39–40m (Desmoulins), 39u "seize"* **119** *25–35m* **125** *2–10m, 28–33m/29–30w* like Wallace **128** *24–43m* **129** *21–24m, 36–39m* **152** *12–20m (Naudin)* **156** *5–24m (Khanikoff)* **157** *37–41m (H.A. Weddell)* **158** *18–24m* **159** *2–9m, 31–34m* **161** *wt* I must study Naudin on Return; I cannot but suspect crosses *25–30m* **169** *26–37m (Geoffroy)* **205** *21–27m (Winterbottom), 31–38m (Boudin), 39–41m,* ⇑*3u "Boudin"/wb* I must read that book **206** *11–16m*

QUETELET, A. *Sur l'homme et le développement de ses facultés* 2 vols.; Paris; Bachelier; 1835 [Down, ED]

THE RABBIT BOOK London; Journal of horticulture; n.d. [CUL]
v

NB p.2; 4; 14; 16; 22; 24; 34
2 *2–8m (Confucius)* **4** *33–35m* **14** *5u "Double | Full"/w* Oar lop – Horn-lop *13u "5th | eye", 20–23m/21u "I | inches"/22u "5"* **15** *fig.m* **16** *2–4m, 29–32m* **22** *28–32m* **24** *27–33m* **26** *16u "Chinchilla", 20u "wild | sprig", 23–29m* **28** *1–3m, 12–14m* **30** *15–17m, 19–21m, 22–23m* **31** *11u "Ram Rabbit", 17–19m/18u "from | 20"* **32** *4u "Rouennais", 4–16m/12–16m, 19–23m, 26–28m/26u "Nicard"* **34** *8–10m*

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beh, phy, tm

NB1 Does killing Drosera cause contraction – is elasticity contracted during life?
NB2 ♦ 9 & 27 & 29 & 38 Torpedo
144; 165 Blushing
178 contraction of muscle due to elasticity contraction of amoeba
237 Trembling– why excitment, because too great

9 *3–5m (Du Bois-Reymond)* **27** *25–31m (Matteucci)* **28** *30–31m* **29** *1–11m, 23–27m* **38** *2–8"..."/3–10m* **144** *7–17m* **165** *4–10m, 19u "vaso-motor"* **178** *22–31m* **179** *20–23m* **237** *20–30m* **238** *3–15m/14–16m*

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11 *1–3m* **13** *1–7m* **148** *13–14w* Galapagos **149** *16–19m*
℘

RAMSAY, Andrew Crombie *The physical geology and geography of Great Britain* London; Edward Stanford; 1863 [Botany School, I]

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geo se

NB Will Shrinkage account for surface grt elevation & subsidence on same area
p.261 Earth brought down by Rivers
261 *1–9m*

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ad

NB p107 On Marine animals getting accustomed to salt water
107 *31–34m*

RANG, Sander *Manuel de l'histoire naturelle des mollusques et de leurs coquilles* Paris; Roret; 1829 [CUL, on B, S]

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NB *⟨not CD⟩*
356 *4–7m*

RAY, John *The wisdom of god manifested in the works of the creation* 2nd edn; London; Samuel Smith; 1692 [Botany School, S]

NB1 & Instinct so Babies
Vine 99 manured in Vine leaves
99; 107 babies; 100
NB2 p106 112 114 115 121 125–140
p.134 p.136 Part II
part 1, 106 *9–18m* **107** *1–5m⟨FD⟩* **108** *↕w* As domestication makes some animals more prolific (? fresh teats produced?) questions answered **109** *1–8m/wt/↕w* are the last eggs fertile If so, possibly animals might regulate their prolificness according to case of feeding young Will not apply to caterpillars.– Was not Doris superfluously prolific **112** *⇑3–1m* **113** *⇑12–1m* **114** *⇑10–1m* **115** *⇑10–1m* **116** *6–20m* **121** *4–6m, ⇑6–1m* **125** *1–10m* **127** *1–7m/w* if not they would not live. This argument shows in what strife each species lives *wb* Adaptations might be classed always necessary to existence, necessary under ◊ **128** *⇑10–1m* **129** *3–12m* **130** *⇑16–1m, wb* burrowing animals grow analogues **132**

wt Co relation in structure, as breast & womb, must be result of laws of organisation ↕*w* Adaptations which may have grown with formation of the species *5–20m* **136** *"II".?* **139** ⇑*10–3m*
⟨*other markings not CD – some FD*⟩

part 2, 68 ⇑*20–1m* **69** *8–14m* **134** *10–16m* **136** *4–20m*

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149 *8–10m*

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beh, gr, h, sl, ss, sx, tm

vol. 1 NB African do not 41 Kissing
♦ 60 Error; 306 Aymara ⟨*text has "Amyamara"*⟩
152 Direction of Hair on arm of Gorilla
& manner of killing
223 Women ugly in lowest tribe & selected as slaves
♦ Ananga pretty story (Sketch of African discovery)
445 Rage Expression
109 wonder

41 *21–23m* **60** *3u* **109** *16–18m* **152** *25–27m/25–26u "rain | head"* **223** *9–13m* **306** ⇑*1u "Amyamara"* **445** *5–17m*

vol. 2 NB African Map. ingored
Missionary 153 313 savages singing when excited
253 Beauty, & 521–522 Blackness
258 intelligence of Negros
306 & sexual selection man
♦ 310 Language
313 singing
394 Blue eyes in negress, uncanny
364 M. of N.
Your map not alluded to

153 *16–19m* **253** *1–7m, 11–14m, 18–22m* **258** *10–16m* **306** *17–23m/19–20w* like male Birds **307** *29*→ **308** *11–14m, 15–16m, 19u "women fanciers"/18–24w* American Men have as long hair as women **310** *18–22m* **312** *11–15m/?, 26–29m* **313** *11–12m/11u "the", 16–20m* **394** *1–4m, 10–12m* **520** *6–10m, 16–19m, 29–32m/31u*↔*, 32–34m* **521** *1–2m, 7–10m, 22–24m, 29–31m, 33–35m, 38–39m, 40m* **522** *1–4m, 12–15m, 20–21m, 31–34m, 35–36m* **523** *1–2m*

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beh, h, or, sl, t

NB 112♦; 410♦; all very striking & original; 415♦ Poetical♦ 434♦; 420; 423; 237; 441 & 453 What authority
SB ❐ℜ ➼
Passion
420 & 421 combination depends on language ✏ Selection Man
423 Sharpening sticks by rubbing probably origin of Fire.
♦ 437 Origin of curiosity
441 Savages – When excited singing What authority ✏ Own
453 Origin of ♣ decency✏ & propriety
✏ Mind of Man
W Reade Martyrdom of Man

112 *14c "West"/w* East **410** *12–17m* **415** *3–10m* **420** *13–17m* **421** *17–18m* **423** *8–9m* **434** *6–9m* **437** *15–18m/w* Why not danger **441** *19–30m* **453** *8–20m*

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NB O/

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gd

NB 255–57 Distribution of
255 *2–10m, 41m* **256** *10–17m, 20–24m* **257** *18–21m, 21–22m, 21u "have | influence", 32–34m* **258** *24–30m*

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NB Mere Compilation not worth reading

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RENGGER
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ad, beh, br, cc, cr, cs, dg, ds, fg, gd, geo, gr, h, he, mg, no, oo, or, pat, phy, sp, sx, t, ta, ti, tm, v, wd, y

NB ✍
I did <u>not</u> notice whether tame Monkeys have bred
354; 357; 360
334; 336; 340; 364; 368,9,70,90
10; 21; 38; 41; 43; 45; 47,8; 50
71; 100; 106; 110; 115; 118; 125; 126; 149; 152; 155; 165; 212; 214
368,9,10
173; 174; 175; 185; 189; 196; 201; 208; 224; 233; 249; 250; 259; 263; 265; 268; 276; 288; 291; 294; 295; 298; 301; 309; 327; 331; 342; 345; 351

xv *6m, 9m, 10m, 11m, 12m, 14m, 15m, 16m, 17m, 18m, 19m, 20m, 21m, 22m, 23m, 24m, 25m, 26m, 27m, 28m, 29m, 30m, 31m, 32m, 33m, 34m, 35m* **xvi** *2m, 3m, 4m, 5m, 6m, 7m, 8m* **3** *5–14m/7–10w* resemble of women to men *20–22m/w* Beard *26–27u "Die | Farbe", 30–32w* complexion in passion **4** *18–20m/w* from Life in Canoes **8** *19–22m, 24–25m/w* See correction pxv **9** *7c/w∉, ⇑5c/w∉* **10** *32–38m, wb* Jemmy Button sharper eyesight than sailors **11** *1–5m* **14** *12u "ums | Zoll", 22–34m/23–28w* sexual differences in colour *26u✍ "graulich-gelb", 27u✍ "bräunlich-gelbe", 29u "jungen Carayas", 30u "tragen | Weibchen", 34u "rötlich-braun", 35u "dritten Schwan", 37u "vierten | Jahre"* **15** *27–28u "Das | Stimmapparat", 33–37m, 34u "Beim | dieser", 35–36u "zwei | Männchen"* **20** *19–22m/w* Polygamy **21** *5u "Des Morgens", 6u "der warmen", 11u "Männchen | gewöhnlich", 14–15u "oft | lang", 17–24m/w* these Monkeys make noise merely for pleasure **23** *2–4m* **26** *14–17m*♦ **27** *26u "sieben"* **31** *30–31m/u*↔ **34** *32–37m* **35** *12u "Cebus-Azarae", 16u "der Eckzähne", 17u "etwas | Schwanz", 18u "Gesichtswinkel"* **38** *15–17m, 22–23m* **39** *21u "einige Töne", 33–34u "mit | lösen"/33–37m/w* Beat the oranges to losen rind **40** *2–4m/w* Yet oranges not aborigin **41** *19–22m/w* Monkeys drive flies from their young **42** *35–37m, wb* afraid of cold Mothers **43** *20u "häufig", 36u "Käfich"* **45** *30w* Cebus *34w/36w/wbτ* **46** *wt* Ennui – desire for object – astonishment – passion – Fear & pain – Joyful recognition *1–8w* Desire astonishment (2) Passion (3) Fright or Pain (4) (5) (6) *9u/11wτ 13–16m/w* same in all – instinctive *19–27m/w* the crys cause very strong <u>associated</u> emotions & act on them *30–33m/w* Crys & laughs *34–35m/w* Laughter *32–34u±/wb* <u>Expression</u> *wbτ, wb* Humboldt mentions crying monkey **47** *28m* **48** *25u "Zorne"/24–27m/w* Harm by passion ! by spirits **49** *1–2m, 11–12m/w* male monkey arrives later at puberty than female *15–18m* **50** *1–6m/w* Monkeys diseases very like men *5–23m/w* colds, coughs consumption. Cutting teeth die from fever accompanying. Cataract. Apoplexy & inflammation of the bowels. Medicine produces same effect on them **51** *5–19m, 5–12w* directly accustom to confinement – very affectionate & loose even wish of freedom *26–30m/w* like Negros best *34u "Hunde", 32–36m/w* People say horses created for men, I might say dogs created for monkeys *wb* (With reflection a monkey with these feelings would be sorry having attacked his friend) **52** *wt* How like to man's character! do for comparison *1–4m, 6m, 8–20m/7–16w* (<u>Vengeance</u> encircled○) *21–26m, 29–31m, 34–37m* **53** *wt* Emma often perceived he had been on dining room on the table & found it so – *1–10m/2w* Jemmy did this *3–5w* but Squib○ was not so *12–13u "Habsucht", 17–24m* **54** *5m, 6–8m, 14–15m/14u "selbstständigen Charakter", 20–22m/20u "andere | unterwerfen", 24–29m/25–33w* Rides dogs & makes them go where he likes. *wb* X Man to horse, Molothrus to cows dog to monkeys (& even some crustacea probably to Cetacea see Macleay in ● on accidental selections; **55** *1–3m/w/wt* was easily taught ♣ to open shells of Palm with stones *7–15m/8–11w* generally learns to break eggs. *15w* Learns by exper *15u "sachte", 16u "zerbrochenen Theil", 17u "nur einmal", 17–18m/17–20w* if once cut himself with tool very careful *35–37m/w* wasp always listened to paper *35–37m/w* knows expression of Man *wb*✍ these alpaca in S. America Man to <u>Mule</u>! better **56** *wt* A This shows how arts wd be acquired. *6–18m/w* A once taught to break nuts, with stone, uses this art to break nut with stones with bad taste *19w* & boxes *20–27m/w* N.B Monkey gave me nut out of herself & seem to expect it to be cracked **57** *wt* strength of judgment *2u "Urtheilskraft", 6–10m/4–11w* senses of Monkey ♣ are much impressed by circumstances *8u/wτ, wb* X **58** *10w* Nothing about breeding **61** *22–27m/w* p38. lay only on other side **62** *10–11m, 17–18w* Nocturnal Monkey **64** *15–20m* **71** *16–18m* **99** *19–26m/20–23w* Occasional differn in sexes **100** *10–18m*♦, *20–28m, 29–37m, 34–36m/36u "Farbenabänderungen"* **106** *18–23m/19u "Gefangenschaft"/19–20u "Jahre lang"/21u "zeichen"* **107** *1–3m/1–2u "der | Behandlung", 12u "Der | zahm"* **110** *7–9m* **115** *5–9m, 14–18w*

This is a representative species *16–26m/18–19u*↔ *118 13–15m* **125** *5–7m/7u "von Geschlechtstrieb", 12–13m/13u "sehr zahm"/14u "folgt | wird"* **126** *13–14m/14u "grösseren | zu"* **129** *29–32m* **141** *26u "so | zahm"* **148** *12–14m, 31–36m* **149** *1–5m, 26–32m/w* like Bizatcha useless instinct **151** *1*Q **152** *12–19m/w* Proofs from name of places that Dog is aboriginal *21–22m, 32–36m, wb* Thinks hairless dog probably aboriginal – is called Chinos – which is evidently wrong, as African species is nearest **153** *18–22m/18w (a) 22–28m, 30–33m/w* not uncommonly some of the Hairless Dogs, are dumb, only howl – *wb* Q✍ The naked dogs appear to cross less with the common than the latter amongst themselves – where they do cross young take after mother – ♣ never knew a hairy dog produce hairless or half hairles how in vixen **154** XX Although Spaniards introduced many races, now so generally mingled that it is rare to find trace; though that sometimes can be done *6–9m/w* concludes hairless dogs descended of aboriginal dumb dogs *11–18m* **155** *14–18m/14–32w* wild dogs like tame in colour & form – burrow holes hunt like wolves single or in packs do wolves burrow *24–25m* **161** *29–36m* **165** *7–9m/w* curl end of tail like cats *18–21m/w* do not break neck **173** *25u "bewegen | Schwanz"/24–27m/w* like cats. **174** *23–26m* **175** *17–23m/w* does not live probably 20 years produces 1 or 2 young **183** *2–6m/w* like young deer *8–22m/11–17w* slight different shades of colour **189** *25–28m/27u "schmiegten | an"/26w* & p.190 *30u "Spinnen"/29–32m* **190** *14–15m* **194** *10–14m* **196** *5–8m, wb* the variation of wild animals probably is only at different point of wider range– very different from domesticated animals **199** *16–24m/w* Toads & serpents kill this Cat *32–36m* **201** *3–6m/w* even in Native country *7m/u "Niederkunft | seine"/w* odd possession in instinct **210** *wt/1–7m/w* Two cats in same country with very similar habits yet much rarer **212** *wt/1–10w* Most important instance of my theory Marriage keeping form constant *10*Q *11–14m, 13–30m, 16u "300 Jahre", 22u "fortwährend", 26u "kürzere", 28u "Schwanze", 15–19m/15–32w/wb* The cats of interior of Paraguay differ in quantity of hair, & places of body where most scanty, & ♣ forms for European, but not in Aegyptian where European Cats have perpetually been introduced **213** *3–4u "verschnittene Männchen"/w* castrated males larger *11–12m, 35–37m/w* no wild cats! *wb* wild dogs rare in Paraguay common in La Plata **214** *1–7m/1u "Eseln", 10–22w* no old wild cats – even when left behind, die **224** *22–28m* **233** *4–8w* not good case p.236 *9–14m/10–12w* representative Species *23–26m/22w* exceed *28–33m/w/wb* but wild far from Man **236** *1–2m* **249** *28–29m/29u "wie | Kaninchen", 32–34m/34u "alle | kamen"* **250** *25–31m* **251** *25–35m/28–29w* variation *33u "dritte"* **252** *1–4m* **259** *18–22m/w* variation **260** *31m* **261** *11–13m* **263** *24–25m/23–29w* shows how necessary for ♣ pheasant to avoid this path *wb* has confessed it varies a little from British species **265** *33–37m, wb* Is it not unhealthy women which most miscarry? **268** *31–32m* **276** *34–36m, wb* no variation **277** *6–10m, 27–36m/w* not parent of Guinea Pig – *wb* without indeed the changes in constitution of latter, prevents its breeding with the Aperia **288** *20–25m* **291** *33m* **294** *24–31m/w* anchylosis kind of vis medicativa **295** *29u "nicht | vor"/28–32w* yet very similar habits **298** *6–8m* **299** *5–6m/5u "gemein"* **301** *26–30m* **304** *3–6m* **309** *1–6m* **310** *27–28m/27–35w* other species rarer than foregoing but habits rather diff. **312** *18–20m* **325** *1–2m* **326** *13–16m* **327** *11–15m/w* yet so tame almost domesticated **331** *1–3m/1u "gross"/2u "so | Junge", 24–27m* **334** *1–29w*✍ & in 1580 (ie 43 years afterwards) Sarmiento saw horses with the Indian in Str of Magellan. *1–25w*✍ Horses new in 1545. have run wild for 300 years *27–29m, 34–38m/w* so increased without man's care *wb* Pampas did not exist **335** *13u "bei | von"/w* like Capons *23–31m/w* Q Compare Azara *34–37m/36–37u "brauner | Farbe"* **336** *14–19m* **340** *21–27m/w* rickety horses short in legs *30–32m/x/30u "gourme", wb* Glanders & gourme, shows that contagious diseases peculiar to constitution & break out without contagion. **341** *26–27m, wb* ass remained unchanged in colour – more degenerated than horse – **343** *13–18m*◆ **344** *26u "braunlichroth"* **345** *6u "Mittellinie | Brust", 10–14m/12–13u "Der | und"/10–11w* Deer *19–22m* **351** *28–30m* **354** *6–9m/w* therefore different habits **355** *22–27m/w* secondary character **357** *3–10m* **360** *14–22m* **363** *6u "1546", 26–29m, 28w*◆ oranges **364** *6–12m/w* Paraguay no wild cattle – from flies **369** *2–17m, 3–8w* no monkeys rest of Andes *13–17m* **370** *1–7m/1–20w* apparently horse constitution peculiarities go with genera C.D. *8–19m* **371** *1–8m/2–6w* these limits of genera all wrong *15–18m/15–22w* species of Carnivora, Bats genera. not generally confined in longitude, with some exceptions. **372** *20–25m* **274** *2–10m/5–6?* **375** *wt* Thinks distribution of these animals, which do not feed on grass, is determined by vegetation, which changes much in longitude. I doubt– X *1–26m, 29–32m, 32–33m* **376** *2–7m, 13–15m, 18–22w* Distrib. of Carnivora indirectly follows plants *27w* (see p.396) *28–31w* Distribution bears relation to process of locomotion of species *32–37m/w* even rivers separate Monkeys *wb* in some genera chiefly depends on the form of the tail!! *wb* NB Mem➾ Sir F. Chantreys story of tame Monkey readily taking to water **377** *4–10w* (a) examples of distrib in proportion to tail *13–18m/16w* a *21u "zum Laufe"/20–27m/w* surely this does not apply to antelopes of Africa *31–32u "einige | ausgenommen"/31–37w* one exception shows range not determined by powers of locomotion but by adaptation *wb* (a) Surely the doctrine of range being determined by locomotion powers & kind of foods (such as can be perceived) is false; for think of case of two ostriches: they living together shows ⟨*rest* ◊⟩ **378** *1–9m/wt/1–4w* This is all absurd,– powers of locomotion will perhaps greatly limit in many cases most wonderful overuled Coypus extension, but adaptation is great feature N.B Are not these remarks applied to genera if so perhaps true *8-9w* Biscatcha & Agouti *27–31m, wb* ie as far as ♣ food & climate (& enemies preoccupation by other species) ie conditions allow species & genera to range, so will they range in proportion to their mode of progression & the form of the land **379** *4–8m/w* S Africa *15–22m/w* Monkeys partial migration & of other animals **380** *1u "Auch | Einfluss", 2–12m, 25–29m/24–33w*◆ Beasts of prey destroyed others increase immensely, & drive others from habitation **381** *1–3m, 25–26w* probably increased *26–28m/27–28u "fünften | aller"* **382** *2–4m/3u "kleinen Raubthiere", 11–24m/w* chief deaths of carnivora when young **390** *wb* Waterhouse Mice generally or sectionally very large range, but many species of S. America show that species small range – Now this agrees with Rengger 376 fact about Monkeys, but the larger range coincides with possibility of transport.

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SB all Q
363 Merchants visited England & Ireland before Caesar
418 several vars of Cereals cultivated by the Celts at time of Caesar
486 nomad people do not improve beasts. Celts did attend to this subject.
499 Celts had 2 races of sheep with work for different purposes
503 Celts improved Horses.

363 ⇑*6–2m,* ⇑*2–1*→ **364** *5–9m* **486** *14–17m* **487** *4–8m* **499** *9–14m* **503** *9–13m, 13–15m*

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RIBOT, Théodule *L'Hérédité psychologique* Paris; Germer Baillière; 1882 [Down]

RIBOT, Théodule *Heredity* London; Henry S. King & Co.; 1875 [CUL]
beh, h, he, mn, pat, t, ta, tm, y

NB ◆ p.25; 33,34; 39; 142; 323; 373
SB ➾
25 33 34 Relation of instinct & intelligence.
39 Effects of Habit in giving short-sight
142 Calculation like Lutke○ on chances against accidental reappearance of attribute in children.–
373 Average duration of French noble-families

25 *2–34m* **33** *32–38m* **34** *6–12m/7u "if | exist"* **39** *19–37m* **142** *25–28m (Maupertuis)* **323** *25–36m* **373** *27–36m (Benoiston de Châteauneuf)*

RICHARD, Louis-Claude *Démonstrations botaniques ou analyse du fruit* Paris; Gabon; 1808 [CUL, S]

RICHARDSON, H.D. *Pigs* Dublin; J. McGlashan; 1847 [CUL]
cs, f, or, sl, tm, v, wd, y

NB p.15; 24; 29; 30; 32; 38; 41,2; 44
SB ❑β
26 Cross with Chinese restores lessened fertility Q
29 Berkshire a spotted Breed Q
30 Irish Grey-hound Pig with appendages Q
37 16 British Breeds NQ
41 Westphalian 1/2 wild Breed always have

young striped like wild (p.43 do)
42 Crossed Breed of 3 kinds in Pigs, forming a Breed Q✍
44 Good sentence on selecting short legs of Swine

15 *2–7m, 11–12m* **19** *12m* **24** *5–8m* **26** *1–3m, 5*Q *12–15m, 22–24m, 8u "Lawrence"/*Q **29** *1–4m* **30** *fig.w* compare with drawing in title **32** *1–2m* **33** *14–18m* **34** *4w* 1 *5w* Berkshire *7w* 2 *31w* 3 *39w* 4 **35** *22w* 5 *36w* 6 **36** *5w* 7 *10w* 8 *19w* 9 *26w* 10 *32w* 11 *38w* 12 *43w* 13 **37** *4w* 14 *22–23*Q **38** *16w* 15 *29w* 16 *33–36m* **41** *9–10m, 11–12*Q *13–18m* **42** *11–13m, 26–27m* **43** *33w* N.Q. *34–36m* **44** *5–8m, 34–37m/35"…/37u*↔*/34–35*Q✍*, wb* it has been obtained
℘

RICHARDSON, John *Fauna Boreali-Americana* 3 vols.; London; John Murray; 1829–36 [CUL, on B and later, I (14 August 1837)]
ad, beh, ch, cs, ex, gd, gr, ig, mg, oo, sl, sp, sx, ta, tm, ts, v, y

SB1 Richardson Vol I.
p.xxxi.
Fauna B Americana
◆ NB Write to Dr Richardson about selection of dogs of
p3; p.11; 14; 16
◆ 26 (p35 Journal) – Canis Azarae Bahia Blanca cat in Chile – an armadillo at Concepcion Mntains
29 42 47 to 51 61 to 95 116 125,7 136 140,2 157 161 166 181 191 195 231 233 239 241 250 p252 p.263 p.268 p.276 p.280
vol. 1 SB2 ❑β
15 White rings around neck characterises several bears when young Q
29 Vars. of Bears in colour differing in ferocity p.66 variation in Wolf
49 Mustela with aquatic habits Q
51 Local races of Pine Martins
64 on resemblances in appearance & voice of Dogs & Wolves 75 do. 79 do.
67 variation in Wolves Q
62 Dogs broader feet for running on snow Q
72 Crossing of do
Q 76 Var. of American wolf analogous to European wolf – 84 Q do. in Foxes in C. lagopus, fulvus & vulpes
93 on Cross Foxes Q
140 on Brown Rat exterminating black in N. America, as Europe, (& as N. Zealand?)
✍ so Hooker shows how many plants which are naturalised in America are same with those in Europe
142 Field Mouse occupying sheds in N. America
191 Squirrel approach to structure of Flying Squirrels Q
239 Rein Deer & distinct vars. inhabiting woods 250 & other barren grounds
241 Horns various Sexual Q
263 Herds of Deer which remain, all destroyed by wolves. Q here we see manner of destruction p88 Colonies of Foxes do. destroyed.–
268 Female ♣ antelope with only prominences & no horns see the account Q

xxxi *23–24m/24u "same | animals", 35–37m* **xli** *25m* **3** *34m* **11** *25–26m/25u "larger | tail"* **15** *17–23m/*Q **16** *28m, 30–32m* **26** *37–39m* **29** *10–12m* **35** *10–11m* **42** *25–26m* **49** *4–6m, 7u "its | otter"/w* a Mustela *10u "haunts | hunts"/9–14w* Q good to argue against the assumed impossibility of otter-transformation **51** *20–21m/20u "Particular races"* **61** *16–17m/16u "others totally", 23–24m/24u "Wolves | litter"* **62** *1–2m, 4–5m, 13–15m, 16–18m* **63** *19–20m* **64** *25–26m/*Q *28–29m/28u "four | nine", 30–32m, 33m/*Q **65** *1–3m* **66** *12–13m* **67** *5–6m, 8–9u "reindeer", 10m, 22m, 25–28w* shorter, though larger animal *29m* **70** *17m/15–21w* greater than in last, though this is smaller wolf *30m, 33–34m* **71** *1–2m* **72** *12–13m* **73** *1–3*Q **74** *1–2m/1u "muzzle | ears"* **75** *7–8m, 10–13m, 14m/*Q **76** *1m, 3–4m/*Q*/3u "characters"/4u "which | wolves"* **77** *13–14m, 15u "five | litter"* **79** *20m, 25–27m/*Q*/"…", 31u "the | paws"* **80** *19–21*Q *26–27m/*Q **81** *22–23m* **84** *42–43m (Gmelin)* **86** *35–36m* **88** *5–9m/6–7m* **90** *13–15m, 24–29m* **91** *19m, 22–24m, 27m* **92** *21–24m/21–22u "Cross | Foxes"/*Q◆ **93** *15m/*Q*/u "inclined to", 24–25m/25u "be | difference"* **94** *26m* **95** *25u "an | arangement"* **116** *38–39m* **117** *3–4m/u "three | young", 11u "great | cause"/w* So with Beavers **125** *31–33m* **127** *23–25m* **136** *9–11m* **140** *20–22m* **141** *5u "1730", 6u "1775", 8–9m* **142** *10–13m* **143** *4–5m, 13u "varieties | met", 14–15m/14u "in | tail"* **157** *18–19m/18u "rudiment of"* **161** *3–5m* **166** *1–3m (Sabine)* **181** *18–23m (Pallas)* **191** *24–25*Q *25–26m (Vigors)* **195** *15–17m, 18–21m* **231** *9–10m* **233** *8–10m* **236** *30–33m, 34–36m* **237** *20–22m/20–21"…"/21m* **239** *6–9m/w* only for keeping distinct Q *19–20m* **240** *top fig.w* 19 points *low fig.w* 29 points **241** *12–15m/12u "largest | horns"/*Q*/13u "have | branched", 18u "majority", 29–33m/32u "by | bucks"* **242** *1u "month | May"* **250** *5m/6–7m/wt/1–9w* other var In May the Females proceed northward to coast & the males follow in June *8–10m/11u "Lake Superior"/9–14w* Q only for keeping distinct *15m/u "September"/16–17m, 15–19w* other var. proceeds southwards at this month *24–30m/w* does not appear that Bucks & Does migrate separately in the other var: does **252** *7–9m/ 8u "moose | rein", 16–20m (Cuvier)* **259** *35–37m*♦ **263** *29–33m/Q 32–34"..."* **268** *1–4m* **276** *17–20m* **280** *15–18m, 20–23m*

vol. 2 NB ♦ Remark about ● Beak
G.R. Gray ask about number of tail-feathers; 27; 30; 31
SB ❏β
pxx The Younger Birds are driven away & go wandering
27 var. in tooth of mandible of Jer Falcon, present or absent p30 Q
31 var. analogous to other species of Hawks Q
60 variability in length of primaries – 80,90 Q all 3 quoted
89 Owl fishing 139 Tyrannus do
192 Orpheus changing range with man
268 Similarity in Habits of Goldfinch – Habits often more constant than Structure
283 Var. geolographical of Sturnella
292 Eggs of Magpie different from those of Europe; so with an Owl
331 & 332 Change in migration of Swallow – Q nest differing Q only for nest
361 On a Grouse running in circles
404 Fulica var in number of tail feathers Q
469 Variability in length of tarsus & toe in Anser canadensis Q

xix *34m* **xx** *1–10m* **xxxv** *2–3m*♦*/3u "mostly | birds"* **27** *25–26m, 28–33m/33*Q **30** *30–31m, 32–33m, 35–38m* **31** *5–9m/w* analogous Q **57** *21–27m, 34–36m/36u "perhaps | birds"* **58** *3–4u "third | fourth", 4–6m, 20–21m/20u "third | equal"* **59** *3–5m, 34–37m* **60** *4–6m (Savigny and Temminck)* **70** *19–20m* **72** *9u "bird | of", 26–28m* **77** *8–9m* **80** *1–2m* **83** *4–6m/5u "localities"/ 6u "rufous tints"* **85** *26–29m, 30u*↔ **89** *8–9m* **90** *5u*♦*/5–6u "The | shorter"/w* not equal *8u "about | fifth"/w* 1st short *34–36m* **91** *11–13m/ 13u "the | other"* **118** *12–13m/13w* very close **139** *35–36m/36u "dives | fish"* **150** *35–38m/37u "octave | whole"* **177** *1m* **187** *12m* **189** *zb* **192** *18–19m, 22–25m* **226** *30–32m* **231** *36m* **233** *33–34m* **249** *32–33m, 34m* **250** *10m* **268** *22–26m (A. Wilson)/20–28w* other instances of representative species, having allied habits – Thrush in their songs & nests – Gull in S. America **278** *7–9m, 22m* **282** *24–27m* **283** *30m, 33u "6"/w* yet small *34m, 35–37m* **292** *16–18m/17u "blotches | diffused", 27–35w* English eggs shorter but broader *33–36m/35m/w* broader **293** *34–35m* **305** *13–16m, 25–27m* **306** *36–37m (Swainson)* **331** *18–19m, 20–22m, 25–29m, 36m* **332** *2–4m, 4–7m, 9–13m, 25–29m, 34–36m* **343** *1–5m, 6u*↔ **355** *35–38m (E. Sabine), wb* observes measurements from stuffed specimens often vary apparently. **359** *5–17m/7u "celebrating | wedding"/8u "buzzing | ground"/9u "bare | size"/13u "presence | intended"* **361** *32–35m* **362** *1–3m, 4–7m/4u "last | more"* **404** *29–30m, 32–33m (Cuvier)* **407** *39–40m/39u "than | among"* **413** *31–35m* **422** *17–21m, 22–24m* **443** *18–21m (Pennant), 22–23m, 25–27m* **448** *38–39m* **453** *22–27m, 38m* **456** *36–39m* **469** *19–22m/21u/22u ⟨numbers⟩, 23u "same length"/w* Q (a) *24–25m/24u "middle | lines", wb* (a) many cases especially amongst these water birds, of variations in total length, have not been marked **472** *17–23m (Pennant and J.R. Forster)* **475** *8–9m, 33–34m/33u "The | but"*

vol. 3 ℘

RICHARDSON, John and GRAY, John Edward *The zoology of the voyage of H.M.S. Erebus and Terror* London; Longman, Brown, Green & Longman; 1844–48 [Down, I by Gray]

RICHARDSON, Samuel *The history of Sir Charles Grandison* 7 vols; London; W. Strachan; 1781 [CULR, on B; vols 1 and 2 missing; S in each vol. Charles Darwin Buenos Ayres Sept. 1833]

RIEDEL, W. *Die Taubenzucht* Ulm; F. Ebner; 1824 [CUL, pre-B]
ad, beh, br, cs, ds, f, hy, no, oo, or, sp, sx, ti, tm, v, wd

SA *⟨pp. 232–233⟩* ❏β
17 Fertility of Crossed Pigeons
25 Turbit & Fantail with Bald Pate – 27 other Hybrid Q
41 On Hawks catching light-coloured pigeons
42 Dragon silent Q
86 Some she pigeons prefer stranger pigeons to own husband
158 Same coloured pigeons pair more readily (Ch. 6)
163 Results of crossing different colours

9 *wt* Home-doves not so fertile as field! *12u*↔ **10** *21w* carrier *25w* Turkish Pigeon *29w* Ranger **11** *wt* long wing-feathers *1u "Möven", 4u "Schwungfedern"/w* (a) *7u "Hauben"/w* Capuch *8w* Top-knots *9m/w* Tumbler *11w* Fantail; **17** *wt* Bastards very good breeders Vilmorin Turkish to Carrier & common Pigeons either bastard will bastardize with other bastard **19** *3u "gewöhnlich behaupt"/3–6w* German variety of carrier **20** *30–32w* Horsman on origin of Carrier **21** *1–2w* great Pigeon ♣, *6–14w* Beak middling long little curved great Wurzel & skin at nose Body & wings small **22** *wt* Either these Turkish Pigeons or as cross with common pigeon, so not pair breeding with Owls & Trumpeters – Owl hybrids & trumpeters *6–9m/w* (a) *13–18w* Canton crossed with Powters fertile **23** *21–23w* all kinds can inflate crop. **25** *26–31m, wb* Hybrid Turbit – fantail X into a Bald Pate **26** *5–10w* can be crossed with Capuchin & Powters *19w* Jacobin *23w* (a) *wb* (a) Wings so long as <u>often</u> to sweep ground **27** *wt* very quiet *1–3m/w* (a) *25–27m/w* (a) *wb* Hybrid Capuchin – Trumpeter X Turbit **28** *8m, 26–28m, wb* Bechstein never sees so many as 32 feathers **29** *8–9u/w* Bald orbits *30w* Trumpeter **30** *14–17w* male & female trumpeter alike **31** *31m, wb* Trumpeting varies **32** *7w* Pair *8w* Swallow *12u "Feen | Feentaube"/w* Fairy *16–29w* Marked like the Pow○ of Sea Swallow of the Germans colours vary I think mine very pure. Purest not very true. ◆ Those with crest have been crossed generally *wb* Swallow smooth beaked feather footed coloured as mine – only little smaller than Field Dover but slenderer quick flyer Thin legged **33** *1u "einer | versehen", wb* Good flyers & at first wild **34** *wt* not caught by Hawks for manner of flight like swallows *4–6m/4u±* **35** *8m, 9u "Cypersche", 10–15w* Bald Pate? a toy Neumeister Priest *23u "Pfaffen"/w* Priest **36** *21–27w* Bechsteins birds 1 genus **38** *29–30m, wb* 14 sub vars colours of the Monck Pigeon or Bald Pate **39** *4w* Toys **40** *17u "Spot Pigeon"* **41** *16–20m/17w* (a) *21–28w* same account as Neumeisters variety of Horseman or Carrier *wb* very great difference is attributed to colour in facility of Hawks catching them **42** *wt* very silent; I think our Dragon is.– *3m/w* (a) *8–12w* crossed with Turkish produces following *10w* The Turkish is figured by Neumeister *12w* I cannot think what this is *13u "Römische", 14–17w/16u "Schnabel | dick"* used for carrying letters *20–24w* not the Spanish Birds *wb* (B) Moore says white Barb is the Mahomet Pigeons, so little known **43** *wt*◆ I suspect all details here copied *4w* Barb *5u "Indianische | Judische"/w* Barb see Neum *10–11w* Leghorn, Runt. *16–19w* Tail stands up *24w* a Toy *wb* on Finakin and Turner **44** *wt* These strike their wings together like trumpeters *1u "Trommler", 8–14w* very small fingers, Legs very short feathered Beak excessively short *17–29m/w* Not the Lace Pigeon but the Foilback *33–*

35m, wb with a mane He has not seen this **45** *5u "Col. | Forficata", 6–10w* Pigeons with forked tails *12u "Thiergärten", 26–28m/w* very modern **46** *wt* Ring Dover **54** *3–12w* Blue Rock Pigeons *9–11m, 32–33m/w* doubtful **55** *9–34w ⟨not CD⟩* **56** *8m, 10–15m/12w* (a) *wb* (a) Will occupy old trees when house destroyed **61** *30–34m* **62** *23c/w¢* **86** *13–20w* some she pigeons prefer stranger to own husbands **158** *5m/wt/1–13w* This seems to imply like coloured Pigeons prefer each other. **159** *wb* same coloured Pigeons pair most readily **160** *22m* **161** *wt* (a) difference is reciprocal cross of Pouter & common Pigeon *11–12w* Hybrids bigger *12–19m/15w* (a) *21–24w* male gives form the female instinct *24m* **162** *17–32w* Rules of results in crossing colours **164** *5w* cry back **227** *4–34w/wb ⟨not CD⟩* **244** *8–16w ⟨not CD⟩* **245** *1–2m/w* a popular error **246** *wt ⟨not CD⟩ 3–6w Whitish yellow skin over nose 11–19w⟨not CD⟩, 21–26w V. Dixon.– 24–26m/24u "Campana"* **247** *5w Foilback 15–16w* Sea swallow Turkish **248** *5–12w* Tumblers turn on ground with Crop inflated *13–17m/w⟨not CD⟩,* ⥣*13u "Paggedetten"/w* Horsemen ⥣*3w* Carrier **249** *3–8m/w* Powting Horsemen *wb⟨not CD⟩* **250** ↨*w⟨not CD⟩* **251** ↨*w/wb⟨not CD⟩*

RIEDEL, Wilhelm *Die vorzüglichst bekannten Feinde der Tauben* Ulm; F. Ebner; 1824 [CUL, pre-B]

NB O/
℘

RILEY, Charles Valentine *Annual reports on the noxious, beneficial and other insects in the State of Missouri* Jefferson City; Horace Wilcox; 1871–77 [CUL]
beh, ds, em, fg, gd, h, ig, mg, mm, no, oo, or, r, rd, sl, ss, sx, ta, tm, v

no. 3 (1871) NB 14 Stridulating insects; 46; 52; 67 Transitions; 92; 97; 101; 127; 131; 139; 141; 148 Descent; 156; 164 ✔✏; 168 Origin
SB1 ❒ℜ ➻ *⟨not CD⟩*
Riley on noxious insects
156 Autumnal broods alone of a certain caterpillar having a peculiar instinct of forming house, so that it is developed in alternate generations
SB2 *⟨as SB1⟩*
Riley Noxious Insects of Missouri
46 Pea Weevil one of the few injurious insects endemic in Europe◆ America & introduced into Europe.
52 Sudden spreading of Bruchus fabe *⟨i.e. fabae⟩*

67 Larvae of a♦ same moth of 2 distinct colours & respectively attached to corresponding objects. Means of sudden transition
92 & 139 Native insect which has lately acquired an appetite for cultivated apples, but only in certain districts, so considers it a newly formed race with new habits.
97 Rapid spreading of potato-beetle.
100 Increase of its natural enemies; certain vars. of potatos more exempt than others
127 Phytophagous races.
131 Same insects forming coccoon above or below ground & varying in being single or double brooded
✏ ⟨*CD*⟩ Very good essay on Mimicry

14 *48–50m* **33** *40–44m* **35** *12–17m* **46** *27–35m* **52** *16–20m* **67** *6–15m, 17–25m* **92** *3–12m, 17–20m* **97** *3–6m, 8–21m, 39–45m* **100** *19–23m* **101** *24–28m, 38–41m* **127** *38–45m* **131** *4–8m, 40–42m* **139** *7–11m* **141** *20–24m* **148** *43–47m* **149** *14–16m* **156** *27–36m* **157** *17–27m* **163** *21u*▲, *26–32m, 37–42m, wb* Archippus has bad ● **164** *21–25m* **168** *wt/1–13w* Grt destruction of the grey makes the preservation of the Old Type important *15–19m, 22–25m, 33–37m*

no. 4 (1872) NB p10; 11; 16; 23; 35; 58; 63; 66; 74; 85; 119; 123
SB ❐ℜ ➼
10 On new colonists at first most injurious
16 Enemies increase & acquire new habits
11 change of Habits in introduced insects
23 local var. of moth of caterpillar attacking peaches.
35 Migration of an American insect
58 Aphis, two distinct types of Habits though forming same sp. → to p.66
74 Silk-moth the caterpillars of distinct sp. quite alike at first

10 *6–13m* **11** *2–4m, 7–12m* **16** *29–33m, 41–43m* **23** *1–3m* **35** *7–13m, 21–24m* **58** *wt* leaf-galls & roots-galls *1–4m* **63** *10u "No leaf-galls", 11u "Leaf∣abundant", 26–27u "No∣lice", 29u↔, 32–34u↔, 43–45m, 46m* **64** *1–3m, 24–26m* **65** *3–5m, 46m* **66** *25–31m* **74** *7–15m* **85** *15–27m, 33–34m, 38–42m, 43m* **86** *5–7m, 20–22m* **119** *25–29m* **123** *13–18m*

no. 5 (1873) NB 63 Change of Nature; 66 Phylloxera; 83 Mistaken Instinct; 86♦ ✂ Transportation of Pollen of Coniferae Q
● 87 Scale insects of Vars. of apples
150 The moths which fertilised Yucca
for crossing
Nothing for the Descent of M.
SB ✍ 63 Phylloxera. Change of instincts
83 Mistakes in instincts in Scale-louse
150 The Moth which fertilizes the Yucca

63 *17–24m* **64** *13–18m* **66** *39–43m/40u "as∣most"/42–43u "Some∣here"* **83** *25–33m* **86** *36–40m* **87** *1–4m*/Q *7–13m*/Q

no. 6 (1874) NB 115 Sexual Selection in Curculio; 131; Pronuba Moth, Yucca
114 *33–38m (Wallace)* **115** *4–20m*

no. 7 (1875) NB 20; ✍ On Hemiptera with perfect wings & more or less wingless – copulate together & continues inhabit distinct regions, the wingless generally to the north.–
20 *31–40m* **21** *1–6m*

no. 8 (1876) NB1 103 Grasshoppers drifted far down Mississippi clinging to logs
106– take advantage of wind & often travel 100 miles per hour–
122 very curious changes of vegetation owing to Locusts destroying certain kinds; & the change in vegetation caused proportion of insects to change
NB2 ♦ 103; 106; 122
103 *12–17m* **106** *16–21m* **122** *wt* because the I plant not eaten *1–7m, 14–18m, 22–27m* **123** *12–14m, 14–17m, 18–23m, 31–39m*

no. 9 (1877) NB 18; 17✏ Indigenous insects how learn to prey on endemic; 20 Rudiment; 24; 37 Rate at which potato bug travelling; 40; 52 new Habit in insects attacking Wheat 57
8 *28–35m* **17** *3–8m* **20** *fig.m* **21** *6–16m* **24** *14–18m* **37** *8–14m/9u "average∣bribes"* **40** *13–27m* **52** *3–7m* **57** *8–12m*

RILEY, Charles Valentine *The cotton worm* Washington; Government printing office; 1880 [Down]
mg

NB 23 wide migration of moths; 34 ants
15 *20–24m/21u* **23** *22–30m, 32–34m, 35–44m* **34** *1–10m, 17–24m/23u, 24–28m*

RILEY, Charles Valentine *The locust plague in the United States* Chicago; Rand, McNally & Co.; 1877 [Down]

RILEY, James *Loss of the American brig Commerce ... with an account of Timbuctoo* London; John Murray; 1817 [Down, S C. Darwin Feb. 13th 1826] ℘

RITCHIE, Archibald Tucker *The creation. The earth's formation on dynamical principles* 5th edn; London; Daldy, Isbister & Co.; 1874 [Down, I] ℘

ROBINET, Stephane *Manuel de l'éducatuer de vers à soie* Paris; Dusacq; 1848 [CUL]
beh, sx, v

NB p267 female cocoons heavier – (separation of Sexes) probabilities
p.275 I suppose Males were tested again – ley eggs immediately
4 *9–11m* **5** *26–29m, 30m* **7** *16m/u*↔ **8** *16–20m, 29–30m* **12** *1–6m, 10–16m, 17–20m* **13** *17–24m* **15** *7–11m* **26** *2–6m/2w* mistake **30** *25–26m/m*✎ **31** *1–3m/1–2m*✎ **37** *24–29m* **266** *20–26m* **267** *1–3m, 20–21m* **269** *19–20m* **271** *16m, 22–24m, 25–27m* **272** *7–9m, 26–29m* **273** *2–4m* **303** *16–18m* **304** *4–8m* **306** *21–23m, 24m* **307** *11–12m* **308** *28–29m/28u "vers"* **309** *2–3m, 14–17m* **310** *1–3m/2u "teinte verdâtre", 15–17m* **311** *1–2m* **312** *9–12m* **313** *9–10m* **314** *13–14m* **315** *6–7m* **316** *5–7m, 23–24m/23u "Les|deviennent"* **317** *20–22m, 22–25m, 26–27m* **318** *16–20m*

ROLLE, Friedrich *Darwins Lehre*
cc, ex, gd, oo, spo, v, wd

66 *31–36m/w* crocodiles of Egypt **76** *1–6m/w* variation of forest trees *14–20m/w* rich soil produces variation **78** *4–9m/w* wild sport **84** *6–9m/w* Tacitus says Germans ate wild apples **85** *1–4m/w* Perhaps but○ cultivated of Crab cider? *1–4w* parents *33–34m* **87** *10–22m/10–12w* acclimation **107** *5–6m/w* Properties of sexes attended **177** *5–7m/w* Rutimeyer says not known *15–18m/w* 1st record *26–30m/w* treating Common Rat *31–35m/w* kill each other **179** *3–6m, 15u "Deutschland", 19–20m/w*● **180** *14–15m/w* Mice earlier **182** *3u "grossen", 6–10m, 10–15m, 13–15m/w* are the larger beasts of ● destroyed?

ROLLESTON, George *Forms of animal life* Oxford; Clarendon Press; 1870 [CUL, I]
ad, af, fg, gd, geo, in, no, sp, sy, t, tm

NB1 ⟨*w by FD*⟩
◆ p136, 152
NB2 XXI Sp Theory
XXXII La◗
–VIII Generative Organs
XXXV Reproductive organ
LI Sp Theory
LXVII Affinities of Fishes to Dipnoi & Ganoids
LXXX CV◆ Classification of Fishes
Sp. Theory
XXI ◆ Ascidians C.I
LI; C.V. Spe Theory; CX CXXV CXXVI
SB •◇
pXXI Von Baer paucity of individuals & species & confined area go together
pLI Dental papillae with caps of dentine observed in Parrots
p.C.V. On important organs multiplied in Annulosa, but not in Arthropoda
p.CX Transition between aerial & aquatic respiration.
✏ Rolleston

xxi *1–5m, 33–36m (Wyville Thomson)* **xxxii** ⤊*2–1m* **xxxv** *13–27m* **xxxviii** *4–6m* **li** *34–36m* **lxv** *27–29m* **lxvii** ⤊*12–7m* **lxviii** *7–11m, 11–14m* **lxxiv** *39–40m* **lxxv** *15–17m, 30–37m* **lxxx** *21–24m, 24–27m,* ⤊*8u "Ganoidei|type"* **lxxxi** *5–8m/w* La◗, *11–15m, 24–26m* **lxxxiv** *6–13m, 20–22m* **ci** *13–14u "distinctive|Vertebrata"* **cv** *3–6m/w* I suppose multiplied inversions in Vermes **cx** *19–30m* **cxxv** *20–24m/21–28w* these might seem○ at every point **cxxvi** *11–32m* **cxlvii** *1–2m* **facing Pl. 10** *w (barometer readings)*

ROLPH, W.H. *Biologische Probleme, zugleich als Versuch einer rationellen Ethik* Leipzig; Wilhelm Engelmann; 1882 [Down, I] ℘

[ROMANES, G.J.] "Physicus" *A candid examination of theism* London; Trübner & Co.; 1878 [CUL]

⟨*markings presumed to be by FD*⟩

ROMANES, George John and EWART, James Cossar *Observations of the locomotor system of Echinodermata* (extract from Phil. Trans. Roy. Soc.); 1881 [Down, I]

ROSENBUSCH, Carl Harry Ferdinand *Mikroscopische Physiographie der massigen Gesteine* Stuttgart; 1877 [Down] ℘

ROSS, James *The graft theory of disease, being an application of Mr Darwin's hypothesis of pangenesis to the explanation of the phenomena of the zymotic diseases* London; J. & A. Churchill; 1872 [CUL, I]
beh, ch, ct, em, fg, he, or, pat, phy, r, sp, t

NB Pangenesis; p40
quotes Hippocrates on Pangenesis – 42 48
description of growth of cells –53
113; 114; 241; 247 249 252 Beauty; 262; 267
conclusively inquires on origin of contagious Diseases – 269 272

40 *1–11m, wt/1–11w* This bears on pangenesis i.e. not gemmules in blood **42** *1–3m, 29–30m* **48** *16–23m* **53** *18–23w* but the skin on sole of foot is inherited **54** *25–30m* **55** *18–26m* **58** *25–30m* **59** *3–20m/9–11?* **112** *16–18m, 21–24u*↔*, 25–28m* **113** *4–6m, 9u* *"circulation"/8–11m/w* this is against me **114** *26–30m/w* I look at quantity *wb*♦ No Nature must be different *wb* The prepotency of foreign pollen depends on general vigour for a change **224** *wt* development may be said to result from the fecundation of tissue by gemmules from older tissues *1–3m* **241** *30m (Adam Smith)* **247** *3–9m/w* The delicate kind of Beauty **249** *16–21m* **252** *2–13m (Burke, Dugald Stewart)* **261** *14–22m (Wallace)* **267** *12–20m* **268** *8–28m* **269** *15–20m* **272** *8–19m*

ROSSI, Darius C. *Le Darwinisme et les générations spontanées* Paris; C. Reinwald; 1870 [Down]

NB O/

ROUX, Wilhelm *Der Kampf der Theile im Organismus* Leipzig; Wilhelm Engelmann; 1881 [CUL, I, FD]

14 *22m* **65** *21m* **71** *11m* **81** *23m* **94** *16m* **100** *5m* **121** *31m* **127** *9m* **134** *5m* **141** *13m* **149** *28m* **154** *11m* **171** *11m* **218** *19m* **224** *19m*

Royal Commission *Report on the practice of subjecting live animals to experiments for scientific purposes* London; HMSO; 1876 [CUL]

NB ♦
p.30✎; 74; 166; 172; 200
iii *"Colam..77"m*✎ **x** *"4672"–"4667"m/["..."]*✎, *"1188"–"1543"m/["..."]* **xii** *"1442"m* **xv** *"1018"–"2242"m* **xvi** *"1867"–"1874"m* **xvii** *"5627"m, 21a "knowledge"/w*●, *"4934"–"5037"m,* ⇑*12m* **78b** *"1538/1541/1543/1546/1548"m*✎ **166b** ⇑*2–1m* **167a** *"3163"–"3178"m* **169a** *"3218"m* **172b** *"3298"m* **176a** *"3383"m* **279a** *"5583"m*✎ **282a** *"5627"m*✎ **335a** *"Innervation".m*✎

ROYAL SOCIETY *Catalogue of scientific papers, 1867–79* vols 1–8; London; Eyre & Spottiswoode [Botany School]

vol. 2, **142.b** *22m (Dana)* **153.b** *36w* General work **154** *wt* Lythrum Illustration Essay ◊ **655.b** *57m (Forbes)* **656.a** *53m (Forbes)*

vol. 3, **482.a** *59m (Huxley)* **483.a** *53m (Huxley)* **483.b** *57m (Huxley)* **687.b** *10m, 24m (Knight), 42m, 45m (Knight)* **688.a** *33m (Knight), 39m, 43m* **688.b** *11m*

vol. 6, **247** *wt* A narrative of travel on the Amazon 1853 *wt* 7 papers 1850–53 **247.b** *"8".m, "11".m, "12".w* large number of papers put here **248.b** *18m, 27m, wb* 55 papers up to 1863

vol. 7, **140.b** *13m (Bentham)* **744.a** *26m (Gaudry)* **1046** *5m (Hyatt)*

ROYER, Clémence *Origine de l'homme et des sociétés* Paris; Guillaumin-Masson; 1870 [CUL]
beh

NB ♦ 67; 84; 89; 328; 337 good; 339; 121 good note ◊ on growth
67 *6–10m/6w* courage **84** *2–6m* **89** *15–20m/w* No quite different **121** *23–26m (Gratiolet, Huxley)/26u "atropié", wb* some monkeys here becoming extra arboreal if so hand degraded Hence degraded in some of the swinging monkeys ⇑*1*→ **122** *3–8m (Huxley)* **328** *6–15m* **337** *at* p.337 *wt* never defend each other only good, perceiving danger (Rabbit social & silent) C.D. **339** *14–18m/w* Birds pair & yet are social

RUDOLPHI, Carl Asmund *Beyträge zur Anthropologie und allgemeinen Naturgeschichte* Berlin; Haude & Speuer; 1812 [CUL]

NB ⟨*on p.188*⟩
40♦; 58,72,78 ⟨*he means 73*⟩ Felis Manul origin of Angora; Pallas Books
115 to 137 to 167; 184; 186
SB ❐ℜ
Rudolphi
115 does not believe after careful looking that seeds ever stick to birds feathers, as Willdenow accounted for water-plants,
139 Bring case of F.W. Fish, difficulty in diffusion
139 Linnaeus asserts that the Pike is disseminated by Birds
♦ 143 Rudolphi argues f
155 Rudolphi was greatly misled by little knowledge of antiquity of world in present state
161 cases of Hybrid Fish
163 – Zebras (only references), no one good case for me
163 – Rabbit
165 – Hellenius case Q
184 on the Hen of ♣ Vidua(?) with long tail disowns cock when robbed of it (very good)
186 Beautiful male butterflies more difficult.

40 *8–11m (Pallas)* **58** *14u*♠, *15–17m/15u "stamme|ab"* **72** *26u "Petrop. 1780", 31–32m (Pallas)/wb* I have, I think, read **73** *3–4m/w* supposed parent of Angora Cat **78** *16–18m* **81** *2w* not read **115** *13–16w* Bird & beasts can do but little in spreading plants *20–26w* still less sticking to feathers of Water Birds, for feathers oily.– **116** *1–6m/w* Has looked to many Water Birds & fd. no seeds. Stomachs of migratory he has always fd. empty.– *21u "Wassergewächse"/18–30w* He thus accounts by water-birds for wide distribution of water plants – by sticking to feathers & in dung **119** *22m* **120** *9–12m/w* When salt, sea-side Plants occur **124** *14–20w* wind cannot transport from mountain to mountain **127** *4–6m/w* when cold **129** *5–9m/w* 1812 **137** *10–12m/8–18w* When wingless insects fd. in 2 parts of world proof of distinct Origin **139** *wt/1–3m/w* (Remember Water-spouts) So before Agassiz – Fish speak strongly that they have been created at many points, as same Fish in distinct rivers – *7m/u "Fischen | Wassers"/w* (Remember Löess) *11–12w* Rivers of Scotland. *14–20w* Alps; But if all under sea, it requires more means of transportat. *22–24m/w* Glacial case makes of Fish much more difficult *25–26u↔, 26–27u "ab | seritur", 28u "Th | 1391"/w* My Edit – *35–36m, wb* Take North of Gt Britain alone all under water, except Peaks perhaps, & then wd not have Fish.– But then since united to Mainland,as shown by land-animals.– **142** *22–27m/w* if only pair created then carnivores wd have destroyed the herbivores &c **143** *19–22m/19–29w* When S.B. found on Alps & Mtain of Asia what right to suppose came from one to other **154** *wb* How completely all this is Nott & Gliddons work in Abstract – fortified by the Aegyptian work **155** *wt* All that I shd expect wd be that Negros raised in U. States wd be more variable in slight degree in colour & other respects.– *6u "Anfang"/6–11w* there shd be at least the beginning of variation in Negros &c in U. States *13–14u "nicht | ist"/13–18w* as we know the world not so old in present state!! **156** *26–28m/17–32w* Mem Races have been driven from place to place, confounding effects of conditions & so with animals. **159** *5–7m/w* how like Agassiz &c *10–11u "alle | bleiben", 21–26m/19–29w* species or no according as one looks to variability of limits **161** *4–11m/6w* Hybrid Fish *32–33m/w* Hybrid Canary **162** *1–7m/1u "Citronenzeisig"/w* Siskin *5–6w* Bechstein fruit Bronn– Have **163** *3–4m/3–8w* Donkey painted like Zebra before it was permitted to cover the Donkey *23–24m (Hartmann)/23–26w* This Book I have seen referred to *25m/w* Hybrid Zebra **164** *6–8m/7u "äthiopischen | gemeinen"/*Q *10–12m, 14–16m, 38u "Auszuge"/w* abstract **165** *3u "Rehkuh"/2–7w* Sardinian Roe-Cow was this not probably a Mouflon?? *13–17m/w* case os Seals old observer offspring not described **166** *zt, 22–23u "Meerschweinchen"/w* vars of Guinea Pigs true **167** *wt* albino *2a "Kakerlaken"* albino *2a "Kaninchen"* rabits **180** *14–16m/u↔/w* female elephants & Rein-deer **181** *24–26m* **182** *29–31m/u "bey | mehr"/w* I suppose confined to male **183** *13m, 18–19u "der | hindert"/w* checks flight *21–22u "Dann | fliegen", 26u "fesseln", 30–32m/w* Polygamous **184** *2–5m/2–10w* The female does not recognise the "Anmer" without tail when robbed of tail – *4u/wτ, 20–27w* What cause of beauty of snakes? *30u "fand | zwey"* **185** *wt* Lizard or Newt *1u/wtτ, 5u↔, 8u↔, 9–12m, 19–21w* Salmon Hook male fish different *20–23m* **186** *7u "Leuchtkäfern", 9–13m/w* female shells *15–19w* male butterflies most beautiful **187** *1–9w* female Bees sting *20–22m/22u↔/w* spiders **188** *10–15m/w* generally no differences in flowers in dioicous flowers *17–19m, 20–24w* Exceptions of Male flowers authority Ask Hooker

RÜTIMEYER, Ludwig *Beiträge zur Kenntnis der fossilen Pferde* Basel; Schweighauser; 1863 [CUL, I]
gd, geo, sp, tm, v

NB Milk teeth; 38 Sp. Theory; 57; 79; 136 Sp. Th
38 *20u "so | dieser"/21–22u "Moschusarten"/24u "Anoplotheriumart"/26–27u↔/15–31w* milk teeth of Moschus like 2d teeth of Anoplotherium **57** *19–21m, 28–32m* **79** *1–14m, 15–20m, 23–30m* **126** *12–17m* **131** *5–6m/w* Slight difference in teeth *6m, 8–9m, 12–17w* does not know whether present Horse of same district like the ancient one of Lake ●, *23–25m/u±/w* great differences in other respects *26m* **132** *1–2u "Celtisch bezeichneten"/1–4w* In Horses of bronze & Celtic periods *5–7m/7u "Bronzezeit", 24m, 32–33m, wb* E. fossilis distinct from E. caballus which is the living Horse **133** *4–7m/w* one Horse; probably not endemic, but imported from several places & times *11u↔, 12–14u "Equus | Varietät"/w* fossil Horses in S. Russia *22–24w* but not same as true E. fossilis **134** *3–4?, 8–12w* In Switzerland few remains belong to E. fossilis **135** *26–28m/28u "Diluvium"* **136** *14–18m/w* E. plicidens doubtful

RÜTIMEYER, Ludwig *Die Fauna der Pfahlbauten der Schweiz* Basel; Schweighauser; 1861 [CUL]
br, ds, e, f, gd, geo, ig, mg,sp, tm, v, wd

NB p30 Wild Boar formerly larger than now Changes in Foxes, Weasels &c &c

RÜTIMEYER, SCHWEIZ

SB1 Variation of Nature; Spec very good Look through volume

SB2 ❑β

♦ 75 Friesland ox nearest to B P

Cattle✏ Rutimeyer

130 cows bones proof of old domestication

133 teeth present certain difference from our present cows

134. People of Stone period possessed race of cows of different sizes

– Turf cow oldest race short body & fine legs & feet like Zebu ✔✏

– 136 & very large races

137 Trochoceros race fd only in 1 locality

140 domesticated – 148 doubtful sp.

140 Primigenius races found everywhere, of slightly variable size, & agreeing closely with wild type mixed races

143 Brachyceros Brachyceros race or longiform p148 very distinct ✔✏ – small race – B. frontosus very close to it – This agrees closely with Turf cow of which is so common in <u>oldest</u> buildings

145. B. frontosus of Owen race now living in Switzerland, did not exist during Stone period.–

145 from moment of taming wild allied races, then stability is lost & hence he calls them <u>races</u> – B. taurus for commonest races – Bos. primigenius &c for species.

148 Simmenthal race now in Switzerland belong to frontosus-races

201 Oldenburg Holland Friesland race. = Primigenius

205 Brachyceros-race fd in Switzerland ✔✏

207 frontosus-race – thinks, possibly the Norwegian race descended from it not fd in Stone period – but living in Switzerland

211 Canton of Freiburg cattle belong to this race

The great part in all these fd fossil & domesticated

214 Brachyceros race no <u>white</u>, different shades of – dark-colours with lighter stripe along back ✔✏

215 Frontosus race red or black – ♣ or some patched with white

216 for M. & W. Europe – Brachyceros race East & South

♦✏ 221 B. trochoceros – formerly domesticated, but does not recognise as parent of any country race – <u>so may be passed over</u>–

SB3 ❑β ✍

<u>Rutimeyer</u> Pfahlb <u>Pigs</u>✏

27. S. crofa & S. scrofa palustris – latter wild & domesticated

30 wild swine formerly bigger otherwise

identical

42 Summary on difference of teeth of Turf swine

52. X✎ <u>Stone</u> turf swine as wild species. 53 X✎ nearest to Siam

120, 121 on domestication of Turf swine & common swine

163 Turf swine domesticated towards end of Stone period X✎

167 – a still smaller race at a later period

168 a Roman race with different teeth

171 Races of 6th century

181, 184, 186 Bundtnerschwein – Turf-races

188 all tame swine have different back head

190 Turf & Indian swine closely allied X✎

SA ⟨*pp. 102–3*⟩ ❑β ✍

<u>Rutimeyer</u>

Cats. 23,28♦✏ Swine p.27 & 120, 160, 168, 171, 175, 176

Cattle p.71 to 112 – 130 to 149 p.161, 172, 200 to 223, 235

Dog 117, 119, 162, 170, 238

Horse 122, 164

Goat 127

Sheep 128–191

Swine continued 181

Hens 231 about

15 *wt* character of Bones different in wild & Tame animals. *1–5m, 4w/5wτ, 16–17m/16u "Ur und Bison"* **16** *8–15w* urges effect of domestication on the Bones *11–17m, 21–28w* Recent skeleton of wild swine darker than tame **22** *25–30w* Fox not so large as wild certainly same species **23** *28–31m* **25** *7–12w* Beaver of greater size apparently teeth modified *7u "ausser", 8u/wτ* **27** *5w* excluding sub genera *8w* only 3 known species *13w* Fitzinger rubbish *23w* House-swine few remains *24–30u±, 26–33w* the common swine is a race, now extinct, which he calls Turf swine existed with the wild swine – *27–28m* **28** *1–7w* Turf swine also domesticated – People would call this a species. **29** *11–13w* Bones of wild & tame swine break differently **30** *19–28w* The wild swine of old period bigger than recent, otherwise identical.– **33** *2u "Das Torfschwein", 9–11m/w* From reasons given does not consider distinct species. **42** *6–18m/w* summary of differences of teeth of Turf swine **49** *22–23m*✏ **52** ✏ *32–34m/32u*↔ **53** ✏ *1–5m, 1–8w* Later Turf-swine was domesticated & traces yet remain in our Breeds.– now extinct in wild state *23–29w* comes nearest in short face to Siam swine, which is not known wild **55** *21u "erlischt"/17–22w*✏ Turf-swine has some characters of Miocene Suidae **57** ✏ *6–8w* identical with recent *13w* Horns variable *18–21w* differences do not bespeak new race **58** ✏ *7–9m, 8–14w* great weight of Horns in old animals causes slight differences in back of skulls *20–22w* great size of skeleton **60** *23–24u*✏ *"um | übertrauf"* **61** *1w*✏ no change **70** *20–30w*✏ Musk & Bison both lived during Stone Period.– over all Switzerland.– **72** ✏ *6–9m/w* cattle descendants of Urochs **75** ✏ *14–15w* Friesland Ox nearest to Urus **84** ✏ *3u "Der | Zebu"/3–8w* I see many references to differences in various Bones **85** *15u*✏ *"Zebu | Taurus"* **98** ✏ *2–3m/2u "Genus | Mitte"* **101** ✏ *8–11m/9–11u±* **109** ✏ *4a "Auerochs"/wt* Bison *3–4u "gemeine | Auerochs""/w* B. primigenius *6u "Urochs | Ochs"/8u "doch | constant", 6–8m/w* points of anatomical agreement *13u "auch | Ausnahmen"* **111** *12m*✏ **112** *13–19m/w* What a History of changes **117** ✏ *28u "kleinsten | Race"/25–28w* Stone Period one very constant race of Dogs. **118** ✏ *23–24m/23u "welche | Grösse"* **119** ✏ *2u "Wachtelhund"/2–4w* quail-Dog setter-Spaniel agrees with this *10–12m/w* agrees in these respects with Hunting dog – *21u/a "Jagd | Wachtelhund"/19–25w* both remote in equal degree from Wolf & Jackall; & agree with the oldest known domestic dog.– **120** ✏ *6u "Wangen"/6–8w* no tame swine here *9u "Moosseedorf", 29–33m/w* in these later buildings the Turf-swine was domesticated **121** *1u "Schwächung | derselben", 5–7w* good arguments that turf-swine was domesticated *18u "gewöhnliche Wildschwein"/w* not then domesticated. *25–28w* in these the wild swine were domesticated & which agree with present swine **122** *13–15w* very rare, though present in all *27–33w* common in newer Buildings; large & small Big & Small Horse *wb* as they kept so many domestic animals, probably many domesticated.– **127** *12–15w* Goats identical with present Swiss goats *19u "ältern Pfahlbauten", 19–21w* Goat commoner than sheep in older Buildings **128** *wt* Goat has not altered since the old period. **129** *14a/u "Solche | Ziegenhörnen"/m/w* wild horses like those of Stone-period. now in Orcades, Wales.– *15–18u±, 22u↔, 26u "Schaf | war"/24–27w* very small sheep with thin & rather high legs. **130** *29–33m/w* cows bones show marks of long domestication. **133** *24–28m/w* some teeth like those of present kinds, some different.– **134** *12–16m/w* differently sized Races.– *18–20w* Different Breeds at all seasons localities *23–30w* The commonest races, especially in oldest buildings (but these not exclusive) is the Turf-cow.– This had short body & very fine legs & feet. like Zebu.– **135** *1–3m/w* Zebu very unlike our cattle in proportions *30u "Concise"/w* has the turf cow & a race larger than largest present race. **136** *2–6w* Robenhausen besides Turf cow race as large as one between largest race & Urus.– *12–14m, 23–25u↔/m* **137** *9–11m, 16u "welche | engster"/17u "aufgestellte | Species"/15–18w* only found in one ♣ locality **140** *4–8m/1–8w* Trochoceros shown to have been domesticated by variability of size of Bones *14–15w*♦, *18–24w* Trochoceros is a very large-horned race.– *24–27m, 28–33w* Former domestic race confined to W. Switzerland. This present race found everywhere, of variable size & agreeing with wild B. primigenius. **141** *20–22m/21–22u↔* **142** *21–23m/w* size does not vary greatly **143** *1a "Concise"/1–3w* skulls certainly of mixed races between these two *4w* or longiform *"mit | Rhinoceros", 8u "Torfmooren | Megaceros", 9u "römischen Antiquitäten", 26–30w* B. frontosus comes very close to B. longiformis.– *26u↔, 28u "kleinhörnige | auf", 31u↔* **144** *2u "ab | Torfkuh"/1–8w* The foregoing agree with Turf cows which is so common especially in oldest Buildings.– rarer in the more modern– **145** *15–20w* The above 3 Races alone found– A common living "frontosus" race now in Swiss, is not found. *18–20m, 25–29w* From the moment of taming allied wild species, their stability as species is lost – Hence he calls them races. *29–31m/w* a *31–32u↔, wb* (a) The right of giving the descendant of distinct species under name of Bos taurus is not so difficult, as the separating the wild parents.– *wb* What a proof of fertility of distinct species.– If not good species what variation in a state of nature.– **146** *wt* the races, Bos primigenius, trochoceros &c for wild Taurus primigenius, trocheros &c for tame *1u/wt, 18u "Owen"/w* Nillson *19–20m/u "Bos | indicus"/w* 3 other parents of our tame oxens *32–34m (Cuvier), wb* Cuvier thinks primigenius one of parent races **147** *9m, 11–12u↔, 13–17w* Yet some difference between these & tame Oxen of present day. *29–31m/w* differences perhaps due to crossing **148** *1–3w* more doubts abour specific differences of B. trochoceros *9w* or longiform *11–14w* This form very distinct from the 2 others **149** *1–6w* Zebu more distant from B. primigenius & others, than any of these from each other. *15–18m/w* difference in no incisors in such as he has seen – Does not Blyth speak about differences at birth? *17u "Verminderung | Incisiven", 21–22u↔, 31–33m/w/wb* quite immaterial in bump of fat – appears in Argali & Rein Deer in winter.– **156** *22–25w* Extinction & rarity of some species. **157** *wt* who could have ever expected so much change??– *1–2m, 3–8w* Changes in wild anims gigantic size of – perhaps differs in Horns of the(1) – small size of Foxes – the sharper teeth ♣ of some of the Carnivora *25–27w* Abbeville 2 races of cows of different sizes **159** *15u "Verschiedenheit"/11–19w* Morlot's Bones from Railway cutting, are like present races & very different from Pfahlbauten – & of variable size, whereas constant in the Pfahlbauten –. **161** *17u "Brachyceros"/w* or longiform *18–28w* Turf cow almost exclusive in oldest buildings.– In later supplanted by large primigenius races. & in one region the other larger B. trochoceros.– *wb* (The whole importance of case depends on the 3 forms being found fossil & not domestic. C.D.) **162** *1u "einer | zahmen", 2–3u "Concise | Rindvieh", 5–7w* native Concise only tame beasts were Turf-cow & one small dog. *7wτ 10–15w* Dogs do not change, whilst cattle do **163** *1–3m/w* In Morges, dog larger *9–11w* Turf-swine domesticated towards end of Stone period. *20m* **164** *10m/9–13w* The Horse of Morges belonged to very small Breed **167** *4–6m/4–17w* a still smaller race of swine than the Turf-swine.– in a rather recent Building, this Breed a strong Breed – so diversity in the lost race of Turf-swine **168** *23–31w* or Roman – this race of Pigs like little turf race, but with stronger marks of domestication, & change in Molar 3 **170** *5–7w* In 563 different Dog from Stone Period **171** *2m, 3–9w* in 6th century Swine large race & above mentioned smaller domestic Turf-races with difference in teeth. *26–31w* The shortening of row of teeth.– Here comes question whether race really same as Turf swine *31–32u"äusserst | 3"* **172** *21–27w* a very small race of cows of rather recent date **175** *25–30m/w* Does not doubt that long-raced common swine descended from S. ferus **176** *4–10w* Turf swine – wild seems to come nearest to Siamese swine.– **179** *10–11m* **181** *wt* He has before remarked that all the Eastern, Chinese, Siamese are pretty closely the same *9–11m/w* Berkshire & Chinese Swine skulls closely alike *17–23w* a small peculiar Swiss race somewhat allied to Berkshire. **184** *16–22w* Turf swine differs greatly from Berkshire but with some exceptions comes near the small Swiss Race p.181 **186** *7x, 7–19w* Berkshire reverse in Teeth of Turf-swine *20u "Bündtnerschwein", 23–28w* This Breed near to Turf swine, like common swine to the wild Swine 29–30u↔ **187** *15–19w* Berkshire perhaps related to S. Celebensis *23–24w* Berkshire a crossed Breed **188** *5–8m/w* certain of back of Head common to all wild Swine *10–12m/11–15w* all tame swine have a ♣ different back Head – *13u "sondern | betrachten", 16u↔, 25w* Summary *26–27u↔, 32u↔* **189** *3–4u↔, 8–9u "das | Formen", 16–19m/w* not improbable that Turf-swine related to short-faced Breed. *25–29w* Turf-swine in wild state assuredly not confined to Swiss. **190** *8–13w* He widely thinks Turf-swine & Indian swine closely allied.– *wb* The great point is that a distinct wild species or variety, ♣ has been domesticated – (probably more). Whether the Turf-Schwein be called a race or species is unimportant – it differs osteologically **191** *17m, 19–21w* Stone sheep different from present common races **192** *20–21m/21u↔* **193** *3a "Wildschafes"/wt* Wild forms not enough known.– *1–5w* Thinks many parent-forms probably.– *6–9m/w* The only known fossil sp. differs from the known wild *19–20m/w* Not one to him known race of sheep agrees with that of Stone Period **195** *1u "den | Nalpsthales"/1–8w* Here a race of Sheep like those of Wales & agrees with Stone Race (I do not think this race wild.) **201** *16–20w* He misses in Stone period one existing race; & amongst the existing there is one not found in Stone period.– *21u "Friesland | Holland", 22–27w* These races agree with the Primigenius race of Stone Period closely in skulls. **205** *1w* This is the same as fossil♦ longiformis of Owen **207** *21–22w* Found in Turf in Scandinavia *23–24u↔* **208** *5–7m (Nilsson)/6u "Ausser | dieser", 11–13m/11–22w* thinks that some Norwegian cattle may be descendants not found fossil in Switzerland in Stone Period but domestic races belong to it in Switzerland. **211** *18m, 20u "Freiburg"/19–22w* These cattle belong to frontosus race * *wb* * The great point is that 3 or 4 species or forms of cattle have been found fossil, & clearly allied domestic groupd are found at the present day.– **212** *12–14m/11–16w* apparently a crossed race with that of Brachyceros **214** *21–28w* agriculturalists make 2 chief Swiss races, which are geographically separated *30–33w/wb* all dark coloured – a lighter stripe along Back – This agrees with Brachyceros Race (ie longiform) see next Page **215** *12w* a Southern Breed *21–22u "roth | gefleckt"/21–25w* patchy colours This is Frontosus race **216** *6–7w* a Northern Race *19–21w* This present at oldest period *20u "Brachyceros", 21u "Frontosus", 22w* this is a later importation *32u "nördliche | zweite"/ wb* ie frontosus **218** *1m, 7–8u "romanische |*

Vieh"/w with great Horns *8u "folgenden | rechnen", 27–32w* 4 Wild Races primigenius frontosus longiform or Brachy & trochoceros **220** *18u "Simmenthal | wahrscheinlich", 19–20u↔* **221** *1a "brachyceros"/wt* Norwegian *wt* longiform *8–9m, 14–15m/14u "bracycheros"/ 15w* longiformis *16w* Final result *17–21u±/w* longiformis *20–21u±, 22–26w* as this found in oldest Buildings, probably endemic in Switzerland, not so B. frontosus *22u "Bos", 27–28u↔/28–32w* This formerly domesticated; but he does not recognise it in any living race.– **222** *8u "podolische | romaische"/8–10w* origin doubtful perhaps from *10u "Bos primigenius", 11u "trochoceros"/w* or *14–19m/ 15–17w* Indian ox distinct **223** *11–14m/13u "Mischform | ansehe"* **225** *15–16u↔/13–16w* Robenhausen true old Stone period Q✍, *23u/wτ 24u "Roggen | Hafer"/w* none **226** *4–5u↔, 9u "Fruchtkappeln", 10–12u "kleinere | Klappen", 14–15w* more like this *17–21m/17–19u↔, 29–30u↔/w* apples *33u "14mm"/34u "22 Millim"* **227** *1–3m/3u "oder | Robenhausen"* **228** *6–8m/6u "Vorkommen | Scop."/7u "fehlt | ganz", 9a "findet"* now this is found *9u "ist | L.", 14–20w* Hooker disputes that they can be distinguished *22–24w* The P. mughus now in Mountains *25–27m/w* case like as in Ireland turf-bogs *31–32m, 33–34m, wb* These plants now only in mountain-lakes **229** *3–4m (Kölliker)/w* this plant now very rare *6–7m/w* formerly very common in turf-waters *9–15w* Altogether flora of old & present times nearly the same; so different from Denmark *23–26w* yet some traces of vegetation changes in Swiss **230** *10–14m/w* Except for Bones of Buildings did not know of these 3 animals *21–23u↔* **231** *8–11m/9w* changes in animals *13–15m/13w* no mice or rats *19w* no cats or Hens *23–24u "Hausthieren | Hund", 25–27m/w* two races of cows *30w* next come Pigs **232** *3u "concise"/wt* more modern *5–12w* The large House swine from wild swine seem to have suppressed the small previous Turf swine. *16–18w* After Concise new domestic beasts appear *17u "grosses Hund", 19u↔* **233** *wt* since then wild & tame are near *1u "6. Jahrhundert", 7–10w* not much change in domestic animals during the whole immense period *11–15m, 11–23u±, 21–23m* **235** *20–28w* Frontosus race ♣ is absent in older periods – The longiform has endured. The old primigenius race has disappeared; apparently remained until 10th or 12th century. **237** *wt* oldest period *1–3u↔/w* 2 races of cows *5–6u↔, 8m, 14–15u↔, 15a "dieser"* those **238** *1m, 21u "Torfhundes | Pferdes", 22–24m, 22–27w* These probably from the East for not known fossil in Europe *27–28u↔* **239** *10–14w* B. frontosus race seems to have travelled from the North.–

RÜTIMEYER, Ludwig *Die Grenzen der Thierwelt* Basel; Schweigerhaus (Hugo Richter); 1868 [CUL, I]

RÜTIMEYER, Ludwig *Die Rinder der Tertiär-Epoche* part 2; Zürich; Zürcher & Furrer; 1878 [Down]

SABATIER, Armand *Études sur le coeur et la circulation centrale dans la série des vertébrés* Montpellier; C. Coulet; 1873 [CUL]
em, he, ig, phy, y

SB p.315 to 322 Embryology of Heart & animal series–
315 *13–33m/*→*/11–12w* inheritance at younger age **316** *10–12m/11u "précose|penser"* **317** *11–13m/w* see p319 **319** *10–12m/w* good *24–28m* **320** *10–17m* **322** *3–13m, 22–26m*

SACHS, Julius *Geschichte der Botanik vom 16. Jahrhundert bis 1860* München; R. Oldenburg; 1875 [Botany School]

SACHS, Julius *Lehrbuch der Botanik* 2te Auflage; Leipzig; W. Engelmann; 1870 [CUL, I]
dic, f, fg, he, hl, ig, oo, phy, sx, tm

NB 633◆ ◊ Vegetable Elements; 638✍ Separation of sexes in lowest Plants; C.Sprengel on non-sexual fertilisation – was he before Kolreuter?; 641 small Cleistogams imperfect perfect always sterile V◊; 665 & 676 Abstract of Nägeli on intermediate form on inheritance of morphological characters
℘
169 *5–6m* **170** *10–17m, 31–35m, 37–40m, 41–43m* **171** *8–11m* **173** *37–41m* **175** *34–36m* **176** *8–13m* **177** *22–24m, 41–43m*
℘
633 *30u "die|activ", 31u "andere|passiv", wb* Even in the vegetable K. Sachs in speaking of S. Elements○ he says **638** *8m, 16–34m, 41w* Monoiacous **639** *4–7m, 18–22m, 30–34m/31u "auch|Farnprothallien"/w* Dichogamy *41–46m (C. Sprengel)* **654** *36m* **656** *22m* **665** *13–42m/24–41w* Nageli struggle **667** *43m* **676** *6–46w* about inheritance of morphological characters, worth studying *43–47m* **677** *3–34m*

SACHS, Julius *Lehrbuch der Botanik* 3te Auflage; Leipzig; W. Engelmann; 1873 [CUL, I]
che, mhp, phy, tm, v

NB1 86 Bloom on fruit & leaves
NB2 Drosera
p771 p782 interesting discussion Carbonic acid in atmos
on catch of clasping movt of Tendrils
p785 Movement causes of
801 He Sprengel quotes Contrivances ◊
[The Last section of Book has○ discussion on Variation ◊
p134,143 Trichoms
p674 Effect of gravity on movement of Plants
◆ 118 Work on Harz-elongation○ Bot Zeitung/

v *24m, 30m* **86** *32–33m*
℘
118 *2m, 50–51m (Hanstein)*
℘
771 *1m, 32–47m/47u "de Vries"* **772** *19u "Verkürzung der"/18–21m/18w* chiefly *23–32m/25–26u "durch|Oberseite"/25–28w* by pressure the concave side *39m, 41–44m/42w* (a) *wb* some tendrils can clasp only thick objects **773** *6–10m/7w* (a) *24–31m/w* press more closely on object after clasping **782** *14–17m/14–15u "stark|Atmosphäre"* **785** *16–19m/17–18u*↔ **789** *25m* **801** *4–13m, 40–47m (Sprengel)*

SACHS, Julius *Traité de botanique* trans. of 3rd edn; Paris; F. Savy; 1874 [CUL]
cc, che, ct, em, he, mhp, oo, phy, sp, sx, t, ta, tm, v

NB 829 Roots making mark on Marble bears on Chalk in Worm experiments
SB (See other paper)
✍ (By bloom I refer to movements in my experiments by shaking
803; 831; 846; 850 Bloom; 853; 854 Temp.; 855 Bloom 856 do.; 867 Bloom; 868 on refrangibility of rays which act○ in chlorophyll, 875 Bloom; 887 (do); 889 do; 890 do; 901 do; 903 do; 908; 919; 924 Bloom; 936 glycerine extracts & water; 953 Bloom; 957; 958; 972 Bloom; 986 Bloom; 988 do
⟨*over*⟩ 996 Geotropism depends on growth; Bloom✍ & 999 ; 1010; 1020 Tendrils; Bloom✍ 1025 to 1031 Bloom; 1035 transitory rigidity, what I have called paralyzed; Bloom 1039✍ to 1051 Mechanism of Movt; 1056 crossing to 1061 Sexuality✍; 1072 do✍; 1093 ✍ Struggle for existence between closely allied species; ✏ 1021 Bloom to 1018 & all this last Part

ix *wt* Dissolution of dextrine by protoplasm Traube on passing of fluids out **x** *49m* **xxix** *10m, 36m* **xxxi** *42m* **26** *8–13m* **43** *20–23m (Nägeli)* **49** *13–29m* **51** *12–16m, 15u "métaplasme"* **55** *23–28m* **63** *wt* The contents of cells cannot be considered as chlorophyll because not in grains *3–4u*↔*/5u "couleur|homogène"/3–7m/w* & entire cells contents green **64** *21–26m, 22–23u "masse|chlorophylliens"* **65** *8–9u "des|rouge"* **71** *9u "Pisum sativum", 11–14m, 12u "d'aleurone", 13u "légumine", fig.w* over **72** *5–8m/7u* *"albuminoïde"* **77** *35–40m* **101** *1–4m* **116** *fig.w* 73/74/75 *16–20m, 21–24m/21–22u* **117** *31–36m, 35–37m (Strasburger)* **118** *2–7m* **119** *18–20m/19–20u "bien | l'épanouissement"* **153** *26–28m (J.B. Martinet)* **155** *1–3m* **769** *9–15m* **771** *1–11m, 34–39m, 40–43m (Nägeli)* **772** *14–19m* **774** *4–9m, 32–36m* **779** *6–16m, 17–19m, 18–32m (Traube)* **803** *23–27m, 25u "absorber | appréciable", 25w* (a) *28–31m, 39–42m (Duchartre), 46m, wb* Plants with bloom must be different – their epidermis perhaps not that protective **804** *14–23m* **820** *24–31m* **823** *41–43m, 45–46m* **824** *16–21m* **827** *2–3u "abstraction | transitoire", 11–12m, 12u "inuline", 13u "formatrices | cellulaires"* **828** *35–40m, 35u "albuminoïdes", 36u "transport | organes", 37u "nombreuses", 41–46m/41u "albumine", 41u "caseine", 42u "gluten", 45–46m* **831** *6–14m, 23–26m* **839** *8–15m, 10u "grains d'aleurone", 13u "formation | protoplasma"* **844** *2–12m, 14–17m/17–18u "les | endosperme", 21–24m, 32–35m, 36–42m* **846** *5–10m, 8–12m* **850** *30–32m/w* Drosera **851** *5–7m/w* Leaves *7–39m, 7–11m, 38–41m/39u "rosée | qui"* **853** *12–15m* **854** *5–8m* **855** *wt* for I did not know of analogous observations *10–19m, 26u "47°–48°"/25–28m (Nägeli), 28w* over *29–30*→ **856** *11–16m* **857** *35–46m* **867** *29–34m, 40–43m* **868** *6–11m/7u "faible refrangibilité"/8u "rouges | verts"/11u "rayons frangibles", 12–13m/13u "actions mécaniques", 31–37m, 45u "autre | ammoniaque", wb* I had better try first in dark **875** *38–41m, 40–41m* **876** *1–3m* **877** *4–5u "dans | intensités"* **887** *11–17m* **889** *21–27m/21u "obscurité | lieu", 33–38m/34–36w* an error **890** *12–15m/9–15w* He thinks Mimosa same case as sleep?? **901** *38–40m* **903** *15–20m/w* many facts about growing *21–22*→, *33u "déterminées | pesantent"* **904** *2–5m* **908** *13–19m/18–19u "pour | accroissement"* **919** *wt*◆ In Drosera is must be elasticity of under cells *1–3m* **924** *11–17m, 35–39m* **925** *6–10m, 13–15m* **936** *7–12m* **953** *6–22m, 26–29m* **957** *25–33m/28–34[...]* **858** *42–46m (Hofmeister)* **972** *1–9m, 31–38m, 39–41m (Reinke, Sanio)* **973** *3–10m, 24–26m/24–25u "allongement | nuit"* **986** *8–13m, 35–38m/36u "contact | protoplasma"* **988** *14–27m/7–24w* if so, they cannot go back **996** *35–37m* **997** *3–9m* **999** *23–25m* **1003** *20–24m/20w* leaves **1004** *11–18m, 19–22m, 24–43m/29–37w* owing to growth!! **1005** *14–21m* **1010** *25–34m* **1020** *38–43m* **1021** *5–17m, 21–24m (de Vries), 27–37m* **1022** *wt* ??Does he apply growth to sensitive Plants ? May not elongation on one side favour growth *8–14m, 20–26m/w* (a) *wb* See how quick P. gracilis bends – I think in a few seconds – is it credible that it can grow so quickly? **1023** *12–17m (de Vries)* **1025** *8–12m, 19–20u "parce | influence"/20m/21u "complétement | croître"/16–31w* How are movements of leaves of Mimosa & Desmodium with respect to age *20x/wb* X may be these more sensitive **1026** *15–16u "se | accroissement", 28–32m, 36–39m/36–38w*◆ No Stem of Randonium○ *39–43m/w* This asserts that tendrils owe only to growth **1027** *37–45m/42u "variations | température"* **1028** *6–11m/3–13w* How different from Drosera in which the bending plant is not touched *15–17w* Distinct category *30–32m, 41–45m/43u "Starrezustände | 1863", 46m (Meyen)* **1029** *24–26m, 27u "différente | latérales"/27–29m/w* I do not quite understand *36u "Marsilia", 45–46m (J. Sachs)* **1030** *wt* in climbing plants the movement is only required whilst young & growing *21–22u "feuilles | autonomes"/18–22m/w* I suppose this is by nutation *23–28m, 35–38m/36u "Phaseolus", 40–45m* **1031** *26–32m, 33–34m, 35–36m* **1034** *45u "rigidité transitoire"* **1035** *1–4m, 6–11m, 17–22m, 23–26m/24u "490–500", 30–32m, 34–39m, 42–46m/42–43u "Bert | Paris"* **1036** *20–23m/16–23w* my test of C. of Amm. is better *22–24m* **1037** *22–26m (Kabsch), 31–38m, 34–39m* **1038** *7–12w*● **1039** *1–9m/1–2u*✐ *"endomostique | élasticité"/1–3m*✐, *19–20m*✐, *30–35m*✐, *45–46m (Unger)/46m*✐ **1040** *19–21m, wt* 1st Protoplasm Passes out of cell – Endosmosis & Exosmosis may be supported by – but wb be like in effect **1041** *wt* ● of cell-wall & not expelled *wt*✐ must have some different object *5–8m, 6–9m, 9–12m, 15–17m, 35–37m* **1042** *24–29m* **1043** *1–5m, 36–42m/36–37x*✐*/39–40x*✐ **1044** *19–25m/x*✐*/19–20m, 37–41m* **1046** *29–36m, 41–44m* **1047** *6–10m, 24–29m* **1048** *1–5m (Pfeffer), 7–12m/7–8u "que | cellules", 19–26m, 33–38m (Brücke), 44–46m (Dutrochet)* **1049** *32u "pétioles | continuel", 34–36m* **1050** *6–17m* **1051** *4–12m, zb*✐ **1053** *wt* under same conditions action with the exterior tends to cease & the union of 2 differently exposed differentiated the aggregate *1–4m* **1056** *7–10m/1–18w* may be related to exposing them to different conditions so as to diversify them **1059** *2–17m, 31–39m, 44–46m* **1061** *1–7m/1–5m* **1072** *40–43m* **1093** *18–44m*

SAGERET, Michel *Mémoire sur les Cucurbitacées* Paris; Huzard; 1826 [CUL]
cs, ds, gd, h, he, hy, sp, t, v, wd

SB1 Sageret 7; p8; 10; 12; 17; 18; 20; 23; 25 to 30 to 55
2d Part; 5; 93; 102; 104; Duchesnes Works?◆ Bailliere or Hort. Soc.; see to

SAGERET, CUCURBITACÉES
Duchesnes
SB2 ❑β
8 certain melons more true than others
17 A melon from U. States
25 & 27 Melon with seeds of different shapes
28 Hybrid melons more vigour 30 more fertile 36 repeated
I must see Duchesnes' works look in Pritzel Catalogue

Part 1, 6 *22–26m* **7** *7–19w* He evidently thinks descended *10–14m/11–13w*✎ all cross *14–21m* **8** *3–5m, 7–12m/7–15m*✎*/12–14m* **9** *5–9m* **11** *6–7m* **12** *15–16m/10–16w* colour and character **17** *21–23m* **18** *11–12m* **20** *8–10m* **23** *1–3m, 8–10m* **24** ✎ *13–16m, 17–25m* **25** *7–9m/m*✎ **26** *9–11m* **27** *2–7m* **28** *5–9m/1–10w* confesses it doubtful whether Cucumis flexuosus a species *25–26m* **29** *9–11m, 10–14m*✎, *15a "le"/w*◆, *15a "dudaïm"* p30 *17–24m*✎*/20u "les* | *naître"/21m, wb* all animals ∴ fertile **30** *16–17m/m*✎ **31** *16–17m* **33** *9u "Koelreuther", 24–25m/u*± **34** *18–19m* **35** *1–5m/3w* Tobacco **36** *1–2m, 12–13m* **37** *19–25m* **38** *22–27m (Duchesnes)* **39** *20–21m* **40** *1–3m, 5–6m/?, 7–9m (Vilmorin), 13–15m/14–15u "époque* | *culture"* **41** *25–27m* **43** *1–4m* **45** *6–8m* **46** *1m/w* a gourd *3u "giromont", 5u "pastisson", 6–9m/3–11w* Look in Bot Catalogues *10–12m, 14u "dans* | *ouvrages"/13–14m (Duchesne)/w* He is avitism man **47** *15–17m, 18–19m* **52** *7–10m, 12–13m, 15–18m* **53** *13w* gourds **54** *10–11u*↔*/8–13m/w* variation & tendency to hybridise does not go together 55 *7–13m/10u "bastisson"/12w* V. supra

Part 2, 5 *13–17m* **93** *1–2m, 15–16m/5–15w* X Hence I suppose fertile **102** *7–12m* **104** *wt/1–11w* all these plants appear cultivable on same system, so constitutions not different. *6–11m/w* other cases

SAGERET, Michel *Pomologie physiologique* Paris; Hizard; 1830 [CUL, on B]
cc, ch, dv, f, fg, gd, he, hy, in, phy, sl, sp, spo, sx, t, ta, tm, v, wd, y

NB 6 compare grafting & Hybridisation are there any exceptions to plants of same Genera being grafteable.–; 9; 13; 14; 16 effects of graft & 44 summing up=; 43; 47; 48; 65 as odd as Crinum being more readily impregnated by foreign species; 72; 105; 106; 126; 134; 136; 138; 143; 146; 151; 153 to 158; 161; 168; 217; 218; 222; 228; 231 to 404; 491; 552 to end
SB ❑β
17 Sterility from grafting Q✍

43 & 72 seeds from grafting Pear on Quince gives more varieties than on pure stock
47 Contrasts the diminution of size in seeds of fruit-tree, with increase in size of nuts, Almonds & chestnuts by selection
65 222 some vars of pears succeed better on Quince Q✍ than on own stock (like case of Crinum) Q✍
106 The more a plant departs from type the more tends to depart (contrast with opinion of limit)
126 on double fecundation in melon like Thwaites Inula case
136 556 on "variantes" or slight direct variation from conditions
155 does not believe in acclimatisation, only in seedlings vegetating at different periods
218 on changes in fruit-trees
262 on some pears & apples being true by seed
321, 346 Peach does not succeed equally well on all plums Q✍
358, 364, 367, 382 Remarkable vars of cherries – good to quote as more than trifling
398 Work on Gooseberry
561 in characters of parents in Hybrids N.Q.
569 two Fathers

6 *23–26m* **7** *10–12m* **9** *14–17m* **13** *10–13m* **14** *9–10m, 24–26m (Thouin)* **15** *26–28m* **16** *19–20m* **17** *2–8m, 11–24m/11–16m/13–17*Q✍*/18–22m* **43** *24–27m* **47** *8–10m, 18–23m, 20u*↔, *27–28m* **65** *24–28m, 25–26*Q✍, *25u "chose* | *remarquable", wb* Coignassier is quince **66** *8–12"...", 20–22m* **72** *3–6m (Cabanis)* **105** *1–4m* **106** *8–12m* **107** *5–9m/w* like hybridisation **126** *7–11m/12–13w* like Fuchsia *14–17m/15–16*Q✍ **127** *5–6m, 12–13m, 21–25m (Brongniart)* **134** *2–16m* **136** *10–14m, 16–19m, 21–28m* **137** *17–22m, 21–28m* **138** *11–17m, 21–23m* **143** *13–17m, 17–19m* **146** *11–14m* **151** *24u "datura stramonium"/wb* is it N. America? **153** *10–13m/13u "crois* | *plus"/10w* acclimatisation *28m* **155** *3–7m, 9–15m, 22–25m* **157** *13–16m* **158** *3–5m (Thouin)* **161** *19–22m* **168** *12u "arbres hybrides", 16–18m, 18–19m* **217** *18–22m (O. de Serres), 22–26m* **218** *10–21m (Duhamel)* **219** *20–23m* **222** *13–21m/16–18*Q✍, *22–27m* **228** *24–26m/24–25?* **231** *1–5m/2w* p.251 *8–13m* **233** *2–11m, 12–18m* **239** *10–14m (Knight)* **240** *13–14m* **241** *13–16m/5–27w* How inexplicable that the improvements should suddenly stop, as soon as fruit gets arbitrarily good.– **244** *11–14m* **245** *1–5m/wt/1–15w* By selecting these poor seedlings, the race passes through many changes.– this perhaps explains it; but then we must suppose that all the good old fruits have been sudden sports!!! or they have been long individually exposed to same conditions **246** *1–6m, 7–10m* **247** *1–3m, 10–13m* **248** *22m* **250** *14–20m* 252 *1"..., wb* X Perhaps whole case resolves itself into that good fruits do not come in first generation – V. Mons choosing spicy plants has relation, Poiteau says, to their bearing early 253 *28..."* **257** *3–8m* **258** *11–14m* **259** *9–11m* **260** *16–19m* **262** *7–12m, 27–28m/28u "leur espèce"* **263** *2–3m, 4m, 14–16m* **264** *3–4m* **265** *13u "Belges", 20–24m* **266** *7–9m* **271** *2–4m/wt/1–5w* very true Van Mons all bosh except so far better try successive seeds seedlings than of established pears which may have been produced suddenly C.D. **272** *25–28m* **273** *4m, 5–9m* **288** *10–13m (Van Mons)* **289** *13–17m* **293** *11–15w* I never knew what the paradise stock was *14–17m* **296** *22–26m* **297** *3–8m* **299** *7–9m*♦ **303** *19–22m, 27–28m* **306** *3–6m* **313** *6–7m* **320** *15–17m* **321** *17u "pêcher", 18–21m/18u "prunier", 24–25*Q✍*, 25–28m* **325** *1–4m* **346** *5–8m, 9–12m, 13–15m/14w* for plums *22–24m, 23–26m/24–25u "Il | abricotiers", 25–27m/*Q✍ **351** *2–4m* **355** *12–20w* Before rereading this be sure to look at Loudons Ency of Gardening p.922 **358** *16–20m/17m* **364** *16–24m/19–20x*✎Q **367** *2–4m/x*✎/Q *5–7m, 13–15m/14–17w* Monter *17–19m, 20–21m* **369** *4–5m, 21u "soixante-quinze"* **379** *3–5m, 24–26m/24–25x*✎*/u*↔ **380** *25–26m/?* **381** *14–17m* **382** *3–5x*✎*/4–6m* **393** *20–23m* **398** *23–24m* **400** *6–11m, 12–16m* **404** *18–22m* **491** *22–26m* **552** *24–28m* **554** *1–4m* **555** *16–19m/?* **556** *20–25m* **558** *25–28m* **559** *6–13m* **561** *25–28m/27u "non dans une fusion"* **562** *1–2m, 3–7m* **565** *2–3m/3u "plus étonnante"* **566** *17–20m* **569** *24–28m* **571** *10–15m (Vilmorin)*

SAINT BARTHOLOMEW'S Hospital reports ed. J. Andrew and T. Smith, vol. 11; London; Smith, Elder & Co.; 1875 [Down, FD]

ST. CLAIR, George *Darwinism and creation* London; Hodder & Stoughton; 1873 [Down, I]

NB1 ⟨*author's address*⟩
NB2 O/

SAINT-HILAIRE, Auguste de *Leçons de botanique* Paris; P.-J. Loss; 1841 [CUL]
af, ch, ci, cr, ds, em, fg, gd, h, hl, ig, in, mhp, mn, no, oo, or, phy, rd, sp, sx, sy, t, ta, tm, ts, v, y

SB1 ❑β
57 analogies, Tillandsia like Lichen (172)
63 Rudiments of many organs, a so called gland
143 & 153 Q abnormal ♣ organ in class, variable
145 good case of Balancement: 199.–619 Q
183 Q var in individuals analogous to difference in classes
226 species turning into branches
301 Q on passages being general 508 stronger 541 do
407 Rule of colours (same for vars & species)
413 Embryology in plants irregular flowers at first regular
442 rudimentary stamens– 475 of Pistils: 637
♦ 446 var. in individual & differences in species?
448 on anthers of Asclepias
516 two kinds of placentation in same genus characterising two sections of genus = passage by jumps possible =
548 do on ovules
572 a multitude of flowers are impregnated in bud. strong case of – in Goodenia
617 seems to think multiplication sign of highness
✍ under classification allude to Ch. 7 my discussion showing abnormal parts variable
711 Genus not natural when founded on one character
754 on classificatory value of different parts of seeds; it is in fact embryology
756 On great difference in cotyledon in 3 allied plants, showing no charcater is constant
SB2 ❑β
761 Ash 500,000 seeds
763 introduced plants into S. America
782 & 784 on value of character, according as it allies itself with others, which is inferred simply from being constant
786 on value of characters good – embryo most important, yet it is a whole
787 direction of embryo in Helianthemum, very different
788 good showing that physiological importance no rule, because importance of all characters variable.
789 Remarks on Mirbels views on classification
791 & 793 & 814 on High & Low plants good m.s. remark
793 on series not being lineal
815 good case of impossibility of arrangement
818 Monstrosities are only anomalies of the species Q

821 Classification of varieties.
826 no resemblance of embryo in plants as in animals
834 Important organs may vary in early stocks: hypothesis. 836
confirmed by Owen on swim bladder in vol on Fishes

SB3 35; 43; 47; 51 to 57; 63; 66; 127; 138; 143; 145; 152; 154; 159; 170; 171; 172; 183; 195; 199; 226; 297; 301; 312; 332; 352; 355; 356; 358; 364 series in Pappus; 369 in Nectaries; 375; 391; 403; 407; 410; 413; 415; 417; 418; 422; 439; 441; 442; 446; 448; 454; 461; 475; 481; 482; 508; 509; 515; 516 **SB4** 526; 534; 541; 548; 554; 556; 568; 570; 571; 572; 587; 590; 599; 600; 613; 616; 618; 619; 625; 629; 630; 633; 637; 639; 643; 652; 708; 710; 712; 714; 720; 734; 753; 754; 758; 760; 763; 767; 772; 779; 780; 782; 784; 786; 788; 791; 793; 794; 798; 810; 813; 814; 815; 816; 818; 821; 823; 826; 833; 836; 839

title page *z* **35** *7–11m, 29m, 33m* **36** *1–3m* **43** *1–2m* **47** *4–7m, 33m* **48** *1–5m* **51** *1–3m, 7–8m, 23–24m* **53** *28–30m* **57** *4–5m, 6–7m, 8–11m* **63** *29–33m* **66** *17–19m, 22–28m, 30–33m* **70** *28–30m* **71** *23–24m* **89** *1–8m* **127** *21–23m, 21–22m* **138** *13–18m* **143** *18–19m, 26–33m/*Q *28–33w/wb* Case of double organs No. not exactly. but of same on different slates → **145** *6–8m/*Q *8–11m/w* How is this in Cauliflower **152** *29u* **153** *1–3m, 21–23m, 30m/c "5"/w* f81 **154** *1–7m* **159** *4–9m, 21–30m* **170** *27–33m* **171** *30–33m* **172** *1–4m, 21–24m, 29–31m* **173** *4–9m* **183** *4–6m, 11–15m/*Q **195** *19–22m* **198** *20–33m* **199** *1–3m/*Q **226** *30–32m* **297** *15–19m* **301** *5–6m* **312** *24–29m* **332** *9–13m* **352** *14–15m* **355** *4–8m/w* is there not analogy or relation with mass-sizes? *17–18m, 27–28m*♦ **356** *9–13m* **358** *11–14m* **364** *11–15m, 18–21m/w* series in pappus *24–28m* **369** *1–2m/w* Then not true nectary! **375** *16–25m* **391** *1–7m, 10–12m* **399** *1–4m, 5–8m, 11–13m, 21–24m (Schleiden)* **403** *20–21m, 24–26m* **407** *9–12m, 14–17m, 23–31m/23u "le même", 24u "jaune|bleu", 30u "bleues", 31u jaunes", 33m* **408** *14–17m* **410** *18–19m, 22–25m, 27–29m* **413** *7–10m (Schleiden)/w* Embryology **415** *16–23m/14–30w* Laws governing abortion **416** *9–11m* **417** *6–8m, 10–12m, 15–18m* **418** *4–6m/4–20w* as many exceptions as facts *25–27m* **422** *5–6m/w* Law of variation **439** *5–7m* **441** *14–15m* **442** *8–10m, 11–12m, 15–17m, 20u "doigt|Gallinées", 27–28m, 31–33m* **443** *1–4m* **446** *9–15m/10u "M. Mohla", 14u "la|des", 14a "grains"* in same genera **447** *15–19m* **448** *3–6m, 18m, 19–21*Q *23–25m* **454** *11–28m/w* number of non varying characters **455** *zb* **461** *20–24m* **475** *10–16m, 16–17m* **481** *12–16m (Guillard, Schleiden, Vogel)* **482** *24–26m* **508** *15–19m/*Q **509** *30–33m/32u "a|tranché"* **515** *30–33m* **516** *1m/u "axiles|Puisque", 27m* **517** *1–10m, 7–12m/7–8u "placentas axiles"/11u "pariétaux|axiles", 13–14m, 21–22m, 23–25m* **526** *21–25m* **534** *24–26m, 29–31m/29u "sans exception"* **541** *19–25m* **548** *2–11m, 24–26m, 27–30m, 30–31m, 32m, 33m, wb* I wonder how if species **549** *1–2m* **552** *4–6m, 20u "M. Schleiden"/19–22m)* **554** *19–21m* **555** *zb* **557** *4–20m (Schleiden)* **568** *14–18m/w* curious **570** *26–29m (Salvert)* **571** *4–7m* **572** *30–33m/30u "une foule"/w* Q!!? **573** *1–9m/4–5*Q **577** *3–5m* **587** *1–11m* **590** *30–33m* **591** *1–3m, 4–6m, 6–8m, 16–19m* **599** *1–7m, 7–12m, 13–19m, 20–22m* **600** *31–32m (Jussieu)* **613** *3–4m/w* not so in animals Owen **616** *33m/32–33w/wb* How made out value of series **617** *wt* let have no nervous system, no man also○ head *1–2m, 29–30m, wb* If most complicated & altered form is to be highest – no for worm forms first – origin might then be highest.– **618** *9–13m* **619** *20–22m, 23–25m, 28–29*Q *29–31m* **625** *2–6m* **629** *20–22m* **630** *10–13m* **631** *13–15m, 17–22m, 23m* **633** *12–19m (De Candolle, Guillard, Schleiden)* **637** *wt* V.p.643 How know ever existed? *2–6m* **639** *4–8m (Roeper)* **642** *28–33m* **643** *4–12m, 15–16m/u "Commencement|développement", 20–21u "supposition|théorique"* **652** *17–20m, 21–23m* **708** *5–7m* **710** *25–29m* **711** *18–21m (Kunth), 21–22m* **712** *4–17m, 7–9m/9–12u "mais|faible"/8–17w* good similarity *17–31m/18–22u±, 24u "n'en|pas", 25u "secs", 27–28u "contraire|génériques"* **713** *5–8m, 16–18m, 21–23m, 26–27m* **714** *1–5m, 6–8m, 12–18m* **720** *20–23m* **734** *25–29m* **735** *22–24m* **753** *16–17m* **754** *1–3m, 12–15m, 30–31m* **755** *1a "sa"/wt* the embryo *1–4m/w* like embryonic animals *5–6m, 7–10m, 10–12m, 13–14m, 20–21m, 22–25m, 26u "n'est|caractère", 28–32m* **756** *1–4m* **758** *11–27w* Means of dispersion of seeds by springing of capsules &c &c **759** *14–17m/17–26w* it is curious both seeds & envelopes, being thus furnished good argument for final cause. *19u "les fruits", 20u↔, 21u "graines elle", 28–29m* **760** *9u "corniche|haute"/8–12w* What kind of seeds. Gilliflower & Sedum **761** *4–5u "cinq|fruits", 6u "trois mille", 21m, 23–24m* **762** *32–33m* **763** *1–11m, 17–19m, 21u "aucune|culture", 30–31m/31u "laines"* **767** *10–11m/10u "cent ans", 14–15m/15u "laissées|vingt", 25–26m/u "vingt|ams", 33u "moins|siècle"* **768** *16–20m* **772** *17–20m* **779** *27–30m* **780** *4–8m* **782** *25–30m, 31–33m/31u "s'il|possible", wb* We know from experience that any one character is general it will go with others – all organization is corelative **784** *8–*

10m, 13–16m, 19–20m, 21–23m, 23–24m **785** *4–5m/4u "caractère|peu", 12–16m, 17m, 24–25m* **786** *6–7m, 7–8u↔, 8–10m (De Candolle ⟨both⟩), 13–15m/15u "d'ailleurs|moins", 15–18m, 26–28m/27u "de|caractères", 31–33m/!* **787** *4–7m, 4–6m, 6–8m/7–8u "ne|isolé", 13a "caractères"* of embryo *12–15m, 14–15m/u "leur|constance", 16–17m, 22–25m, 27–30m/!/30u "de|différente", wb* How well worth getting good Botanist to explain variation of do **788** *6–9u±, 14–16m, 16–17–19u±, 20–25m/21u "nous|serions", 25–26u "la|Malpighia", 27–31m* **789** *1–4m, 5–8u±/7–10w* where has Mirbel done this?? *8–18u±, 18–24m, wb* Descent is the key, least variable will then be best guide, whatever the part may be **791** *wt* Whatever parent form we can trace ♣ modification *wt*♦ & so agrees with my theory *20–24m/25–27m/!!/28–32m/4–33w* Schleiden Compositae Hooker some parasite So in parasite Lerneidae & cirripedes, especially males of *33m/u "Renonculacées", wb* There is no highest, there is most modified but when much rudimentary, what we must call useless, ∴ not highest & by man's standard high & low. The impossibility of saying what is highest is conformable to my theory – which is highest var of cabbage or dog? – most changed will not do – put man on one side having any index – except most unlike a primary simple form **793** *1–3m, 13–15m, 18–20m, 23–25m, 25–27!, 27–31m/27–28u "moins|Composés", 33m* **794** *1–2m, 4–6m, 11–14m, 15–17m, 19–21m (Jussieu), 22–24m, 25–26m* **798** *1–3m, 4–6w* ● type of family **799** *6–7m, 7–10m, 10–11m* **810** *1–3m, 5–9m (Schleiden)* **813** *24–27m/25–26u "nous|rapports"* **814** *7–15m/12–13u "les|complètes", 17–20m, 20–24m, 24–26m* **815** *2–4m, 8–10m, 11–13m, 15–16m, 1–17w* What case of impossibility of arrangement **816** *5–11m* **818** *10–15m, 16–17m, 20–22m, 24–27m* **821** *3–7m, 8–13m* **823** *7–11m, 19–20m* **826** *7–13m/1–33w* It does not appear that embryo of Dicot, is like at any stage embryo of Monocot or Cryptogamic plants Even Dicot & Monocot are quite unlike in earliest age. as shown by name)– *wb* N.B Reflect on plants not passing through any larva-embryonic state (?because they come at once to play their part in nature?) good selection. **827** *8–11m, 16–18m, 18m, 18–24m/19u "sur|différents"* **833** *14–15m, 18–21m, 27–28m* **834** *9–12m/wt/1–20w* N.B X May use account for diversities in important characters in families, to their having varied in the lower or parent stocks. **835** *11–16m, 25–26m, 29–31m* **836** *17u "fleurs", 20–24m/20u "grandes différences", 25u "bornerai", 26u↔/26–30w* V. Lindley on the rest **837** *11u "mucilagineuses", 28–32m/28u "mucilagineuses"/29u "morphologiques"/30u "car|ces"/w* I think there has lately in Linn Trans **839** *1m/u "même|et"*

SAINT-HILAIRE, Auguste de *Voyage aux sources du Rio de S. Francisco* 2 vols.; Paris; A. Bertran; 1847–48 [CUL]
beh

vol. 1 NB Unreadably Dull
SB ❐ℜ
17 ✍ Aboriginal Indians cultivated the ground; 70 ✍ a proprietor can sell on 1/10 of his stock of cattle yearly
17 *7–10m* **70** *13–16m* **71** *1–2m, 9–11m*

vol. 2 NB Unreadable

ST. JOHN, Charles *Sketches of the wild spots and natural history of the Highlands* London; John Murray; 1878 [Down, FD]

ST. JOHN, Charles *A tour in Sutherlandshire* 2 vols.; London; John Murray; 1849 [CUL]
beh, br, cs, hy, no, oo, sx, t, v, wd

vol. 1 NB see end of Vol 2 for Abstract
x *16m* **xi** *19m/u "Fighting of Stags"* **xii** *10m* **xiii** *15m* **15** *13–16m* **74** *14–18m* **109** *21–26m* **134** *3–8m*

vol. 2 SB1 Vol I; 15; 74; 109; 134
Vol 2; 178; 208
SB2 ❐ℜ
Vol I
15 On Herons breeding on ground
74 On cross of common & wild cat – simple facts
134 on increase of Grouse when clever keeper & trapper kept –
Vol 2
178 More particulars on what Birds have increased by destruction of vermin 179.
179– Q on resemblance of the several grouses to where they haunt; & importance is shown by the great increase in numbers when Hawks destroyed.

iii *19m, 22m/u "Fox-chace"* **iv** *16m* **vi** *17m* **vii** *4m* **178** *4–5m, 12–17m* **179** *4–20m/10–11*Q **208** *1–3m*

SALTER, John *The chrysanthemum* London; Groombridge & Sons; 1865 [CUL]
sports, t, v

NB Laws of Variation; The first breaking or change is the difficulty– →p.3; 41♦ to 43♦ Sports

2 *21–26m, 26–27m* **3** *15–18m, 24–27m* **6** *25–27m* **7** *27–32m* **41** *3–6m, 10–12m, 14–17m, 18–20m, 27–28m, 29–31m, 31–32m, wb* p.3 primordially yellow **42** *3–6m, 8–10m, 16–18m, 19a "Dr. Brock"* yellow kind *21–25m/21u "yellow", 31–33m/31u "in suckers"* **43** *9–15m/10–12m*

SALTER, John William and WOODWARD, Henry *A descriptive catalogue of all the genera and species contained in the accompanying chart of fossil crustacea, including an abstract from the Geological Magazine, Oct 2, 1865* London; J. Tennant; 1865 [Down]

SAMOUELLE, George *The entomologist's useful compendium* London; Thomas Boys; 1819 [CUL, pre-B]
t

NB 338 Explanation of terms

SAPORTA, Gaston de *Le Monde des plantes avant l'apparition de l'homme* Paris; G. Masson; 1879 [Botany School, I]

SAPORTA, Gaston de and MARION, Antoine Fortuné *L'Évolution du règne végétal: Les Cryptogames* Paris; Germer Baillière & Cie; 1881 [Botany School]

SAPORTA, Gaston de and MARION, Antoine Fortuné *Recherches sur les végétaux fossiles de Meximieux, précédées d'une introduction stratigraphique par Albert Falsan* Lyon, Genève, Bâle; H. Georg; 1876 [Botany School]

SAPORTA, Gaston de and MARION, Antoine Fortuné *Révision de la flore Heersienne de Gelinden* Bruxelles; 1878 [Botany School, I]

SARMIENTO DE GAMBÓA, Pedro *Viage al estrecho de Magellanes* Madrid; Imprenta Real de la Gazeta; 1768 [Down, pre-B, S]

SAUSSURE, Henri Louis Frédéric de *La question du lac* Genève; Charles Schuchardt; 1880 ⟨*extract from Journal de Genève*⟩ [Linnean Society of London, I]

SAVAGE, Minot Judson *The religion of evolution* Boston; Lockwood, Brooks & Co.; 1876 [Down]

NB O/

SCHACHT, Hermann *The microscope* London; Samuel Highly; 1855 [Down]

SCHERZER, Karl von *Aus dem Natur- und Völkerleben im tropischen America* Leipzig; Wigand; 1864 [Down, I] ℘

SCHERZER, Karl von *La province de Smyrne* Wien; Alfred Hölder; 1873 [Down, I]

SCHIFF, Maurice *Leçons sur la physiologie de la digestion* 2 vols.; Paris; Germer Baillière; 1868 [CUL]
beh, che, oo, phy, t, tm

vol. 1 NB ✍
64 vegetable feeders can undergo greater & more prolonged fatigue & thus whole structure is in condition. Curious remarks, explaining this
379; 380 Experiments; 396 Expts; 387 Tests; 396 Tests
◊✏
p255 p261 p263 266 270 Blushing
♦ 270
16 ◊ogar

63 *26–35m* **64** *1–2m, 13–20m/13u "activité", 24–27w* Esquimaux Dogs **69** *27–32m* **73** *3–7m/3–11w* so probably C. of Ammonia not digested & is not nutritious *30–32m* **255** *14–17w* I ought to read the previous Chapter *19–25m* **256** *14–17m* **261** *12–16m, 17–19m* **263** *5–10m* **266** *13–16m* **268** *2–8m, 18–21m* **270** *11–15m* **376** *10–12m/13–15m/2–15w* There is this difference that it digests at ordinary temps– so must stomach of Frog **379** *1–4m, 15u "substance albuminoïde"/w* cabbage juice *17–18m/w* Extract of Belladonna *29–31m* **380** *1–13w* I ought to add C of soda to a leaf which has dissolved cube of albumen & see if any precipitate *15–17w* see p.382 for salt. experiments **382** *21–22m/u "Le mercure"/w* see p.387 **383** *19u "acide tannique"/18–19w* Try *23–25m* **387** *27–30m, 33–35m* **388** *8–10m* **390** *30–33m, 34m* **396** *30–35m* **411** *31–38m/34w* Have read **413** *13–15m, 45–46m* **414** *2–4m 19–20m*

vol.2 NB1 ⟨*not CD*⟩
NB2 ✍ 150 Exper. with Milk done; 154 Exper. done; 157
Drosera 4♦ to 200♦ 245 299 304; 281; 304
Blushing 527; 539♦
410 Expression 415♦; ◊
SB ❑β ⟨*by Emma*⟩
Schiff
Vol 1. p.73 Digestion modifies food & therefore probably, C of Ammonia is not strictly digested by Drosera.

♦✏ ⟨*CD*⟩ p.376. On Digestion of higher animals requiring heat
♦✏ ⟨*CD*⟩ p.379. On changes of albumen thro' digestion Do – On certain forms of albumen ✔✎ ⟨*CD*⟩ not precipitated by boiling
383. Digestion requires an acid.
390. All albuminous substance acquires same properties thro' digestion
Vol 2
p.4 On strength of acid best for digestion
18 On digestion of cold-blooded animals.
22 & 25 On dissolution of albumen by weak acids X✐ ⟨*CD*⟩
⟨*over*⟩ Vol 2
♦✏ ⟨*CD*⟩ 29 On replacements of acids.
♦⊸ ⟨*CD*⟩ 38 Fibres of fibro-elastique cannot be attacked by pepsine.
♦✏ ⟨*CD*⟩ 56 On weakness of acids best for digestion.
♦✏ ⟨*CD*⟩ On replacement by various acids.
77 It is doubtful whether pepsine is an albuminous substance: Mem– my pepsine not really pure.
80 There is a relation between quantity of pepsine & digestive matter
86– The same subject
114 ♦✐ ⟨*CD*⟩ <u>Q</u>✐ Demonstrates that pepsine is destroyed during digestion
126 Same subject
142 Gastric juice cannot affect amedon
145 ♦✏ ⟨*CD*⟩ Excellent description of changes in muscular fibres from digestion of W. I did not know when I described my changes.
⟨*over*⟩ ⟨*CD*⟩ ⟨✐ *u*✎⟩
p387 Remarks of Millon <u>with a fly</u>
⟨*over*⟩ Schiff Vol 2
♦✏ ⟨*CD*⟩ 149. On angles of cubes of albumen being dissolved.
♦✏ ⟨*CD*⟩ 150 On liquid casein or Milk & its coagulation not due simply to the acid–
153♦✏ ⟨*CD*⟩ On solid Casein. His explanation does not apply to my experiments.
♦✏ ⟨*CD*⟩ 154 On Legumin soluble in water & its coagulation by gastric juice.
♦✏ ⟨*CD*⟩ Long boiling turns albumens into peptones.
104 Gastric juice of carnivorous & herbivorous is the same.
188 Mechanical irritation of stomach causes acid secretion but not true pepsine – 245 – same subject
196 After copious digestion the stomach is destitute of pepsine
200 On peptogenes
⟨*over*⟩ 249 ♦✏ ⟨*CD*⟩ It appears that if gastric juice does not act characteristically on gelatine, it at least efficaciously accelerates its modification by acidulated water.
281 The peptic glands seem to be different from the mucous glands. Nevertheless the former present an acid reaction. In Drosera they are combined.
304 ♦✏ ⟨*CD*⟩ On a layer of mucous preventing the auto-digestion of the stomach.
157 ||✐ ⟨*CD*⟩ On digestion of fibro-cartilage & on the solution of bones–

4 *25–31m/24–29w* shows how little acid required **5** *30–32m* **17** *wt¢¢, 30–32m/w* How about cold-blooded anims **18** *12u "liquide"/ 13u "à froid"/12–15m/14–17m/1–17w* The pepsine of Drosera probably differs from that of warm-blooded but how about cold-blooded in water *35u "néanmoins | poissons"/19–35m/ 24–35w* all related to liquid Albumen **19** *1–9m/7u "deux | semaines", 19–21m, 33–34m (Spallanzani)* **21** *10m/u "l'albumine liquide"/w* !oh **25** *12–14m/13u±* **29** *24–33m* **38** *26–27m/ 26u "fibro-élastique"* **39** *5–6m/u↔* **56** *18–24m (Brücke)* **57** *27–31m* **58** *13–19m* **59** *24–30m* **71** *2–10m* **77** *13–15m, 18u "un | azoté"/14–26w* it causes inflation of ● of Drosera but these seem not to be absolutely pure **80** *31–35m* **86** *22–26m* **114** *28–35m* **126** *23–25m (Brücke), wb* He has shown that it is impossible to get pepsine ♣ pure without the most laborious operations even if it be possible at all – **127** *18u "matières albuminoïdes", 24u "graisses | intestin"* **142** *4–8m* **145** *5–28m/[...]/9–18w* transverse chain of dots which I saw – there being no more *11–27m, 30–32w* X not Page **146** *2–12m/[...]/7–12m/8–9u↔* **149** *7–12m/8u "angles"* **150** *29–32m* **151** *1–2m, 23–29m* **153** *25–30m, 31–32m/30–33w* No not so with Drosera **154** *15–20m, 21–22m* **156** *13–30m (Blondlot)* **157** *1u "fibro-cartilagineux"* **166** *wt/ 1–3w* Turn them into peptones *3–6m* **184** *21–25m* **188** *13u "sécrétion acide"/16–17u↔/12–17m (Corvisart)* **196** *12–18m* **200** *3–6m* **202** *35m* **203** *1–4m* **245** *5–7m, 15–16w* Mechanical irritation *25u "liquide acide", 23–26m (Tiedemann, Blondlot)* **249** *9–13m* **281** *23–27m/ 26–27u↔/24–25w* Same glands in Drosera **304** *9u "l'autodigestion | l'estomac", 10–16m, 17–23m (Kölliker), 24–25u "et | pepsine", 33–35m/34u "alcalin"* **410** *22–28m/22–24u "très | altéré", 29–33m* **411** *9–10m, 12–14m, 15–16m, 19–20m, 26–32m*♦ **414** *30–35m, 31–35m* **415** *1–3m, 12–16m, wb* Perhaps for expression I had better read next Chapter **527** *6–8m (Ludwig)/4–12w* I have not read this Essay *12–17m, 20–24m* **539** *6–31m* **545** *22–23m* **553** *4–5m, 17–18m, 32–33m* **554** *10–11m, 26–27m, 30–40m, 49–50m* **555** *5–6m, 15m, 25–26m,* *40m, 47m* **556** *15m/u "extrait renfermant"* **557** *1–3m/2u "influences | acide"/w* Drosera *47m/?*

SCHLEGEL, Hermann *Essay on the physiognomy of serpents* Edinburgh; Maclachlan, Stewart & Co.; 1843 [CUL]
beh, br, gd, geo, ig, in, is, oo, or, phy, rd, sp, sy, tm, v, ve

NB p.10; p.21; p26,7 to 55; 71; 80; 85; 92; 129; 131; 144; 146; 149; 197 to end
♦ It might be worth looking to great work to see if he argues his local varieties.
Many for Java & Celebes
SB ❑β
10 Q Many innocuous serpents have grooved teeth 42 on do. important 47 Q
22 Snakes & Lizards a good gap well filled up p24
26 Q Great changes in position of viscera owing to shape of body conclusion Ch 7 & great difference in different forms. External organs more constant
27 Number of vertebrae differing in same species
38 Rudiment of posterior extremities in 3 genera
45 Q Snakes with tips of ribs forming teeth
55 Q Pancreas♦ spleen differing in species & varies in individuals
80 NQ Crotalus mutus has spine ⟨*u*✎⟩ not rattle
146 Coluber canus only species of genus in S. Africa & abnormal species
199 Snakes in Isld of Pacific
203 Section of genus Elaps, trifling distinction in S. America (shows persistence of trifling characters)
206 Corvus cornix & Corone breeding at Dresden (Ch. 4)
207 Sardinia has many vars. (but not many distinct species)
218 Many Mammals of Japan identical
219 Saurians & snakes of Japan all distinct from Europe. Frogs the same!
222 to 226,8 – to 235 The Monkey of Timor a darker var. this looks as if endemic & other Mammals. Much on Zoology of Malay Arch. Philippines & Ceylon allied!
240 N. America in Reptiles seems to have derived from South (do not range far N.

10 *7–13m/8–10*Q **21** *22a "species"* approaches to **22** *4–8m/3–26w* good passage if such organs did not exist now, we shd marvel at the transition. p24 **24** *6–14m/8u "difficult | impossible", 30u "Pygopus"/30–34m/w* Snake or Lizard? **25** *36–39m* **26** *7–13"..."/*Q*/10u "but | lung", 24–26*Q *27–32m, 34u "external"* **27** *35–39m/37–38u "in | vertebrae"* **28** *2u* **38** *24–28m* **42** *5–10m/5u "salivary", 19u "anterior end", 31u "posterior part", 32–36m/33–35m/*Q*/ 34u "more | saliva"* **43** *13–15m, 26–30m, 32–36m, 37u "fatal"* **44** *10c/9u "germs"/w* gums *25c/w*⊄ **45** *31–34m/*Q *36–38m* **46** *14–18m, 31–32u "developed | venomous", 32–35m, 36–37m* **47** *1–4m/w* Explain origin of teeth *9w* Salivary *11–13m, 15m/u "tendinous", 21u "tendinous", 23u "to | articulation"* **48** *1u "dangerous", 1a "consequences"/wt* it is painful, at once **55** *29–32m/*Q **71** *1–3m* **80** *6–10m/*Q **85** *22–26m, 33–36m/34?/u "local variations", 37m* **86** *30–33m* **92** *14–20m* **99** *36–38m* **110** *37–39m* **129** *37w* Plenty of cases afterwards show no. of vertebrae vary **131** *37–40m* **144** *21–27m* **146** *9–11m/10u "known | Africa", 15u "curious"/19–20u "This | species"/15–21w* a wanderer **149** *15–18m*♦ **197** *16u "most | means", 15–20m, wb* Snakes can live without eating 6 & 18 months **198** *36–38m/w* not volcanic islds **199** *6–9m, 12–14m, 19–22m/20u "other species"/21–22u "often | Antilles", 28a/u "Japan"/w* Java *29–31m, 35–38m* **205** *15–23m* **206** *17–26m, 26–30m, 38–41m* **207** *8–9m, 10–12m, 14m, 17–19m, 24–29m* **210** *32–36m* **211** *34–40m* **212** *26–30m/28u "elevation | species"* **213** *37–41m (Buffon, Lamarck)* **216** *29a/u "Cameleon"/22–34w* Q case, I suspect, of great peculiarity, variable. *31u "Ptytodactilus | nose"/28–32m* **217** *31–35m* **218** *17–21m, 27–34m/37–41m (Siebold, Bürger)* **219** *wt* Sea & Land must have been connected between Europe & Japan.– *2–11m/11u "laudatus"/?, 21–25m (Temminck), 29–33m/30–31u "Saurians | Ophidians", wb* what a difficulty introduction of F.W. Eel in Otaheite & some of the Antarctic Isds – Do not they breed in Sea. **220** *3–17m* **221** *29–31m* **222** *3–9m, 26–40m, 30–31m/30u "Timor"* **223** *wt* consult Waterhouse.– *1–5m, 6–40m, 13–15m/14u "Timor", 18u*♦ **224** *2–19m/8u "Timor", 20–26m* **225** *3–5m (Temminck), 9–36m/26u "Marianne Islands"/28u "Timor", 34–36m, 39–40m* **226** *1–8m/1u "Timor", 8–10m, 10–20m, 21–23m, 24–29m, 32u "Marianne"* **227** *5–13m, 23–24u "Sumatra | Borneo", 33–38m* **228** *wt* Sumatra & Java very different soils *2–9m, 24u "islands | Timor", 27–34m* **229** *28–32m, 33–35m* **230** *3u "and | known", 5–8m, 9–13m/12u "No Antelopes", 14–26m, 26–30m, 34–41m/35u "also | tail"* **231** *17–19m, 22–25m, 38–41m* **232** *20–24m, 29–36m, 37–42m* **233** *18–23m, 24–36m/25u "Canis | Javanicus"* **234** *20–23m, 23–28m* **235** *11–16m, 33–40m* **237** *16–19m* **238** *21–23m, 29–34m* **239** *1–2m, 18–25m, 25–34m* **240** *21–30m* **245** *5w* Cuv I p405 **246** ⇑*7w* I.409 **247** *12w* Edw p375.I./I.p410 **248** ⇑*16w* I.409 ⇑*5w* I.p410 **249** *4w* I p409 **250**

⇑*3w* I.411 ⇑*8w* Edw p374 col 2 /I.410 ⇑*18w* Edw p374 /I.406 **251** *3w* Edw p378.2 /I.417 ⇑*11w* Edw:p378 col 2 / I.416 **252** *2w* I.419 *11w* Edw p377.2 /I.413 ⇑*5w* Edw:p377 /I.414 ⇑*10w* Edw p376 /I.412 ⟨*cross referencing of Shlegel's arrangement of serpents to other works*⟩

SCHLEICHER, August *Darwinism tested by the science of language* trans. A.V.W. Bikkers; London; John Camden Hotten; 1869 [CUL, I by translator]
beh

NB Languages primevally invented difficulty – p.54
Speculation on grammar
If one admitted "amabo" is formed of 3 words I will love, agglomerating amabis I♦ you will love
title page *9m* **54** *5–17m*

SCHMIDT, Oscar *Descendenzlehre und Darwinismus* Leipzig; F.A. Brockhaus; 1873 [Down, FD] ℘

SCHMIDT, Oscar *The doctrine of descent* London; Henry S. King & Co.; 1875 [CUL]
cc, ch, fo, hl, ir, mg, no, sp, t, tm

NB ♦ 94; 97,8; 152; 174; 214
SB ⚯
p.97 gives reference to German Palaeontologists who have shown impossibility of separating Ammonites into species.– Now if the exuberance of forms had occurred in only some one sea or at only one time we might easily have had not record – with occasionally a few forms emigrating & spreading. good resume of Wurtenberger &c
p152 case of apparent convergence of character in Sponges (higher organism)
p174 causes why no two groups or stems of polyps are exactly alike.
p214 Ammonites (like Hyatt) first changing in external conditions

94 *2–32m* **95** *1–14m (Haeckel), 23–32m (Agassiz)* **97** *7–16m (Waagen, Zittel, Neumayr, Würtenberger, 23–32m* **98** *7–32m (Würtenberger)* **152** *29–32m* **174** *1–25m* **214** *1–19m* **215** *1–11m, 16–32m*

SCHMIDT, Oscar *The doctrine of descent and Darwinism* London; Henry S. King & Co.; n.d. [Down]

SCHMIDT, Rudolf *Die Darwin'schen Theorien und ihre Stellung zur Philosophie, Religion und Moral* Stuttgart; Paul Moser; 1876 [Down]

NB not read

SCHNEIDER *Der thierische Wille* Leipzig; Abel; 1880 [Down, I]

5 *8m* **10** *25m*

SCHOUW, J.F. *The earth, plants and man* together with
KOBELL, F. von *Sketches from the animal kingdom* trans. A. Henfrey; London; Henry G. Bohn; 1852 [CUL]
ad, cc, ch, cr, gd, hl, is, mhp, oo, sp, t, ti, tm, v, wd

SB1 ❐ℜ p.4; 6; 12; 17; 18; 23; 27 to 29; 59,60; 64; 81; 95; 102; 138; 140; 172; 210; 218
SB2 ❑β
12 on great number of naturalised plants on Islds
18 argues for double creation from Alpine Plants (Glacial Chapt)
20 thinks higher animals never are created at 2 places
29 Alpine plants extremely variable
59 Parallelism in Labiatae & Scrophulariaceae
95 Lotus of Hot Springs in Hungary
218 There have been instances of Convolvulus arvensis sending papillae into plant, which supports it very interesting in relation to Cuscuta (Ch. 4) (marked vars)

4 *32–34m, 35–40m* **6** *1–2m* **12** *21–31m/21–23!/22u "sea | recent", 26–27u "extent | where"* **13** *7–41m, 10–14m/!!!, 21–23!!!, 33–35!!!* **18** *1–2m, 22–27m, 33–40m* **19** *14–16m, 39–40m* **20** *8–10m, 29–33m/29u "many places", 29u "single"* **23** *18–19m, 37–40m* **24** *19–25m/w* never has **27** *20–30m* **28** *28–31m, 33–34m* **29** *1–4m* **59** *32–40m* **60** *30–34m* **61** *19–28m, 28–36m* **64** *35–41m* **66** *6–9m* **81** *32u±, 36–41m* **82** *18–25m* **93** *2–3m* **95** *35–40m* **102** *35–36m, wb* many species are required to confine & modify habits of forming species. **103** *5–6m* **138** *18–32m* **139** *23–28m, 34–37m, 38–40m* **140** *1–4m/wt/1–4w* ? by acclimatisation? **141** *13–16m* **172** *26–29m* **210** *1–6m, 40–41m* **218** *14–17m, 23–29m* **catalogue attached** ℘

SCHÜBELER, Frederick Christian *Die Pflanzenwelt Norwegens* Christiania; A.W. Brøgger; 1873–75 [Down, I]
NB 381, 82
381 *37–41m*

SCHUFELDT, R.W. *Osteology of the North American Tetraonidae* 1881 [CUL.1900, I by author]

title page *"Osteology".u*

SCHULTZE, Fritz *Kant und Darwin* Jena; Hermann Dufft; 1875 [CUL]

NB1 O/
NB2 Hand revisionsO
25; 26; 27; 28; 32; 38; 46; 47; 48–50; 55–58; 61 (1775); 65; 76; 84 &c

SCHULTZE, Fritz *Die Sprache des Kindes (Darwinistische Schriften 10)* Leipzig; Ernst Günther; 1880 [CUL]

SCHULZ, Ernst *Nine plates of photographs: facial expression* [later than 1867] [CUL]

wτ to most photo-captions

SCHWANN, Theodor *Manifestation en l'honneur du Professor, Liége, 23 juin 1878* Düsseldorf; L. Schwann; 1879 [Down]

[SCIENTIFIC LAYMAN] *The new truth and the old faith* London; C. Kegan Paul & Co.; 1880 [Down, I] ℘

SCORESBY, William Jun. *An account of the arctic regions, with a history and description of the northern whale-fishery* 2 vols; Edinburgh; Archibald Constable & Co.; 1820 [Down, pre-B]
gr, tm

vol. 1 NB p.457 whalebone; 485 Balaenoptera (6–9 miles)
251 *14–17m/15u "three|in"/14u "100"/w* 480 ft *22–24m/23u "325"/24u "150"/25u "250", wb¢¢* **252** *3w* 2 1/2 miles *13–15m/w* V. Forster **255** *27–30m* **259** *17–19m, 23–25m, 26–28m* **457** *2u "300", 4–6m/4u "Fifteen|greatest", 24–25m* **479** *14–15m/15u "4 feet"* **483** *14u "3|long", 16u "fringe|bristly"* **484** *8–9u "about|length"/6–13w* Balaen. p457 p483 p479 **485** *26m/u "whalebone|inches"* **486** *12u "9 inches"* **490** *9–10m/*Q **491** *8–11m/*Q

vol. 2 NB p.416 Whalebone
416 *19–22m*

SCOTT, John *Annual report on the experimental poppy gardeners at Deegah and Meetapore* Calcutta; Bengal Secretariat Press; 1876 [CUL, I]

NB O/

SCOTT, John *Manual of opium husbandry* Calcutta; Bengal Sectretariat Press; 1877 [CUL, I]
ad, beh, cc, che, fg, he, oo, phy, sl, tm, ud, v

NB see to all marks; 46; 36; 70 to 77; 81; 111; 130; 131; 154; 167; Cross-fertilisation
SB ✍
36 Effects of salts in causing seeds to germination
49 acclimatisation of vars. & closer adaptation to climate
77 slight chemical differences in vars.
80. 111 apparently inherited effects of scarification like inherited milking
154. vars. differ in liability to mould
167 gnawing capsule with the opium causes convulsive twitch to Caterpillar

ii *14m, 17m, 20m, 33m* **iii** *3–9m, 33–37m, 39–45m, 47–55m* **iv** *20–28m* **v** *14m* **vi** *7m* **36** *20–28m* **43** *1–3m* **45** *8–11m/9u "a|the"* **46** *1–3m, 35–40m* **48** *43–51m* **49** *12–16m, 41–46m* **50** *27–36m* **51** *20–23m, 23–25m* **52** *8–14m* **56** *34–39m/36u "80,000|90,000"* **70** *15–21m* **71** *24–32m* **77** *7–17m* **78** *5–35w* He has before said is found in petals & stamens *9–12m (Schleiden), 15–21m, 22–30m, 32–35m/?* **80** *16–26m/16–35w* i.e. not due to selection – I suppose he means inherited effects of Scarification *45–51m* **81** *8–13m* **111** *4–11m/9u "early|exercise"* **130** *27–32m, 37–40m/37u "Bulk|absolute"* **131** *1–3m, 11–14m* **134** *32–34z* **154** *27–31m* **167** *9–13m*

SCOTT, John *Report on the experimental culture of the opium poppy* Calcutta; Bengal Secretariat Press; 1874 [CUL, I]
oo, phy

14 *1u*✍ *"weighing|capsules", 36–42m/m* **20** *13–19m/14–20m, 32–37m, 40–42m/m* **21** *10–39m/22–24m/35–37m* **24** *20–22m* **29** *29–34m* **30** *16m* **42** *44–53m* **47** *49–54m* **53** *32–37m* **54** *41–47m* **58** *11–33m/25u*✍ *"affecting only"* **60** *42–47m* **61** *30–38m, 47–56m* **63** *42–46m*

SCOTT, John *Report on the experimental culture of the opium poppy for the season 1877–78* Calcutta; Bengal Secretariat Press; 1878 [CUL, I]
oo, phy

NB Frank Protection from Insects
p9 Monkey
17 to 21–22, 28 Protection of poppy by Opium
Frank

part 1, 1 *39–46m*
part 3, 9 *1–15m* **17** *62–70m* **18** *4–12m* **19** *48–64m* **20** *24–29m* **21** *58–68m* **22** *62–66m* **25** *8–23m, 29–35m*

SCOTT, W.R. *The deaf and dumb* 2nd edn; London; Bell & Daldy; 1870 [CUL, I]
beh, he, pat, t

NB 8♦; Deaf Mute reason – ?; 10 smelling – Imbeciles; Expression – 10 Proof of laughing sign of pleasure; 12 Continuation of Gesticulation
There is nothing about antagonism of expressive gestures
♦ 53 Savage snarl of Insane Reversion
8 *5–12m, 15–16m, 18–23m*✎, *21–23m* **10** *9–11m/10–13w* Maudsley○ has similar case *13–14u "the | boy", 19–22m/20u "laughing"* **12** *19–26m/m/["..."]*

SCROPE, George Julius Poulett *Considerations on volcanos* London; W. Phillips; 1825 [Down, pre-B]
geo, se, t

iv *23–29m* **vii** *1–20m* **xiii** *9–16m/10–14w* Sir H **30** *1–21m, 17–22m* **64** *37–43m* **65** *27–38m* **107** *11–13m* **147** *21–24m* **194** *6–14m/11?* **199** *22–25m/26–29m/22–28w* maximum elevation having expended the force *wb* NB none of these theoretical views agrees with the structure of the S. American Andes. **212** *8–42m/21–22?* **264** *3–5m/wt* The curved stratification of the clay beds is not accounted for. Humboldt gisement.

SCROPE, George Julius Poulett *Volcanos* 2nd edn; London; Longman, Green, Longman & Roberts; 1862 [Down] ℘

SCUDDER, John M. *Specific diagnosis* Cincinnati; Wilstach, Baldwin & Co.; 1874 [Down, I]

SCUDDER, Samuel Hubbard *Butterflies* New York; Henry Holt & Co.; 1881 [Down]

SCUDDER, Samuel Hubbard *Historical sketch of the generic names proposed for butterflies* Salem; Naturalist's Agent; 1875 [Down]

SEDGWICK, Adam *A discourse on the studies of the University of Cambridge* 5th edn; London; John W. Parker; 1850 [CUL, I]
ad, af, cc, ch, ds, em, ex, fo, gd, geo, he, hl, ig, ir, no, or, sp, sy, t, ti, tm, v, wd, y

NB1 ¢¢
NB2 ♦ xxvi; 33; xlv; xliv
SB1 ❐ℜ
The publication of the Vestiges brought out ♣ all that cd be said against the theory excellently if not too vehemently
I am almost sure that Hooker in one letter says that Salix is not variable in Himalaya – Is rubus – this very important.–
The constant speaking of a species, as a something known to be definite is source of error.–
216 ➾ Introduct. Even the insertion of a Genus between any two others, though it cannot be said to break down a family, yet in fact tends to same way, for the two portions of the family might have been formed into two sub-families. Sedgwick speaks as if family or group of any kind fixed & ascertainable thing.– The not filling up of gaps depends ♣ chiefly on ♣ our view of how far Palaeontology represents old inhabitants of world – but it ⟨*over*⟩ might have been expected that some forms intermediate between ♣ Mammals & Birds, like ornithorhyncus should have been found – such must have existed probably anterior to Silurian system.– As far as evidence goes decidedly opposed.–
294 ➾ take any species in which there are several varieties – make any one or two races & we are making a species at the present day.– this is the only evidence possible – What domestic varieties are not making!? I do not mean mere seedlings–
SB2 ❐ℜ
Introduction; 26; 33; 48; 54,7; 62,4 to 139; 151; 212; 216 ✍ V. next page of this paper; 219; Appendix; 152; 185; 188 to 192 we here see that a Bony fish as a fish may be highest, but as part of the Vertebrata lower; 208; 278; 290; 294 V. Back
SB3 ❑β
lxv Oldest Fish highest (Book written against law of development higher & higher with which I have nothing to do
lxxi X✎ good against evidence for any number of supposed fossils xciv
xcvii difficulty of appearance of Cycloids & Ctenoids (Developed in hot ocean)
ci – on separation of Fish & Lizard
cxiii argument for coming in of Mammals, now broken down by Purbeck
cxxv Falconers argument that serial species do not accord in time or space
ccxii nature shows love of order & harmony independent of mere vulgar use – one may say this when one knows one plant or

animal so well as to say why its numbers are so many, not that I pretend every character useful – Inheritance & Laws of correlation & direct effects of conditions
ccxvi On genera & orders always keeping distinct. V. note at Back
152 Socrates on use of eye-lashes
186 Good account of why Fishes♦ Sharks highest to p.193
188 On Embryological Development p.278
192 On coexistence of spiral valves in intestine & Bulbus arteriosus in Ganoids & so allied to Batrachians
208 Oldest Rocks in America

ix *zb* **xxxiii** *1–3m, 16–18m* **xxxiv** *11–15m* **xlviii** *4–6m, 14–20m/15–17w* not put fairly **liii** *17u "Cuvier", 24u "Agassiz"* **liv** *7u "Owen"/ 9–14m/1–8w* 3 greatest authorities, pointedly, even bitterly declared against theory So Horticulturalist about varieties **lv** ⇑*5–2m* **lvii** *19–23w* absence of links between classes **lxii** *4–11m* **lxiii** *4–8m, 15–23m* **lxiv** *17–20m* **lxv** *28–30m (Owen)* **lxviii** *1–5m* **lxxi** *6–9m/w* all excellent **lxxiv** *11–15m* **lxxxiii** *1–3m* **xci** *20–23m* **xcii** *13–19m* **xciii** *13–15m (Cuvier)* **xciv** *14–16m/w* very true *30m/a "Classes"* Kingdoms *30u "Classes"/wb* ? not the Fishes & Reptiles **xcvi** *23–26m* **xcvii** *6–9m* **xcix** *10–14m* **c** *25–28m/w* But take existing fish & existing Reptiles **ci** *5–12m (Agassiz)* **cii** *wt/1–12w* the first appearance alone ought to be chronologically in harmony with natural affinities *24–27m, 30–31m* **ciii** *5–22m* **civ** *9–16m/w* shows how imperfect our knowledge of aerial productions *19–23m/w* Birds a capital argument versus. **cvi** *7w* no! **cvii** *1–3m* **cxii** *23–25m* **cxiii** *10–12m, 29–30m (Cuvier)* **cxvii** *1–5m/w* except change in nature of deposits *6–7u "organic interval", 27–29m/27u "seem"* **cxix** *6u "Ceteosaurus"/w* Where described? **cxxv** *13–16m, 17–18m, 19–26m/w* opposed to Agassiz argument of affinities going with space **cxxvi** *3–6m, 3–13m, 14–20m, 22–25m, 5–26w* The most important case I have yet seen **cxxvii** *5–10m, 15–17m* **cxxviii** *1–3m, 17–19m* **cxxix** *25–27m* **cxxxiv** *21–27m, wb* All facts &c. do not show that there is no difference between species & varieties, only that no one can often distinguish them – **cxxxix** *3–5m/3u "gradually exterminated"/5u "not | transmutation"* **cli** *16m (Whewell), 30m* **cliv** *3–6m, 14–16m* **cxii** *2–6m, 16–23m* **ccxiii** *20–22m/21w* Owen **ccxvi** *wt*✍ True great classes will never run into each other – even Lepidosiren does not do that.– *wt/1–16w*✍ what does break-down mean – either then true classes run into one, or are not so distinctly separated *4–5u "there | organic", 5–9m, 13–14m/w*✍ What does this mean *14u*✍ *"improve | perfect", 14–15u*✍ *"break | down", 15–17m/w* yet naturalists often do this **ccxix** *9u*✍ *"organic | analogy", 14–18m*✍*, 20–21m* **181** *13?/u "Neptune"* **185** *28–32m* **186** *5–9m, 15–19m (Owen, Hugh Miller), 29–32m, 36u*♠*, wb* Electrical Fishes **187** *15–21m/17u "chronological history"/w* no *18u "stultifies | development"/w* yes **188** *3–5m, 11–19m (H. Miller), 31–36m* **190** *1–10m (M'Coy), 19–21m* **191** *26–36m (Agassiz)* **192** *35–36m* **193** *1–3m* **208** *16–19m/16w*♦*/17u "oldest", 33–36m* **276** *1–19m (Vestiges, Owen)* **277** *22–32m/22u "what | prove"* **290** *13–17m/13–20w* quite certain no means of telling what is a species **294** *14–15u "appearance finished"/13–16m (Vestiges)/w* no♦ – V. note my M.S.

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NB O/

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part 1 NB O/
part 2 ℘

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title page *wt*✍ Presented by C. Darwin (Duplicate)

SEIDLITZ, Georg *Die Darwin'sche Theorie* Dorpat; C. Mattiesen; 1871 [CUL, I]
beh, ct, em, gd, he, mm, mn, oo, or, phy, sx, ud, v, y

NB 37 Variability of Embryo
47 Castrated Reindeer does not cast Horns off
✍
122 Causes of colour of eyes of Birds
127 Protective Colours of Beetles
135 Instinct good – diving of young ducks whose parents fly away – only like squatting – for parents do not dive to avoid danger
208 Origin of senses in cells in skin sensitive to light
144 Reversion in blind insect & has imperfect eyes
147 Replacement of rats in Europe
176 Carabus in Pyrenees & in N. of Europe

37 *21–33m (von Baer)* **38** *25–29m* **47** *31–33m* **122** *8–33m, 34–37m* **126** *27–32m* **127** *35–36m* **134** *21m* **135** *wt/1–4w* Diving of young ducks whose parents fly away cannot have been learnt by no by ancestors *16–22m/18w* (a) **144** *18–21m* **147** *12–29m* **176** *8–13m* **208** *2–38m (A. Müller)* **210** *27m*

SEIDLITZ, Georg *Die Darwin'sche Theorie* 2nd edn; Leipzig; Wilhelm Engelmann; 1875 [Down, I] ℘

SEMPER, Carl Gottfried *Arbeiten aus den Zoologisch-Zootomischen Institut in Würzburg* Hamburg; W. Mauke Söhne; 1876 [Down, I] ℘

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gd, is, t

NB 287 298 Geog. Distribution
290 Wagners Theory
287 *15–21m, 38m* **288** *10–13m, 18–21m, 23–26m* **290** *1–5m (M. Wagner)* **292** *11–14m*♦ **298** *20–28m* **300** *10–15m* **303** *9m* **308** *6–15m*

SEMPER, Carl Gottfried *Die natürlichen Existenzbedingungen der Thiere* Leipzig; Brockhaus; 1880 [Linnean Society of London, I]

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cc, oo, tm, v

NB p39 – Buck-wheat – Affecting animals differently coloured
♦ p41 graduated skulls
39 *36u/wx* **41** *1–41m*

SEWARD, Anna *Memoirs of the life of Dr Duncan* London; J. Johnson; 1804 [Down, pre-B, S]

SHAFTESBURY, Anthony, Earl of *Characteristicks of man, manners, opinions, times* 3 vols.; London; 1749 [Down, ED]

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h, pat

NB p.119 Colour & resists disease
Used
118 *22–26m* **119** *1–6m, 21–24m*

SHIREFF, Patrick *Improvements of cereals* Edinburgh & London; William Blackwood & Co.; 1873 [CUL]
cs, sl, spo, ta, v

NB 7 several vars. selected out of Fields
SB ☞
7 selected 3 new vars. in one year, from 70 Ears collected out of several fields
p.10 vars. crossing
p.33 & 35 constant & inconstant vars. from crossed wheat.
p.47 The vars. naturally cross, but seldom
p.94. crossing increases variability, & gives greater field for selection

7 *1–7m* **10** *12–24m* **29** *18–25m (Darwin)* **33** *20–23m/23u "constant variety"* **34** *11–14m* **35** *18–19m, 23–24m* **47** *1–7m/w* do not cross much *11–16m/12w* bud-sports **94** *12–16m, 15–24m*

SHUCKARD, William Edward *Essay on the indigenous fossorial Hymenoptera* London; by the author; 1837 [CUL, I]
ex, f, fg, ig, in, sp, spo, sx, sy, t, tm, v

NB1 Neuration of wings variable in the species of Fossorial & & difference in this point characterizes the sexes.–
So individual bugs are winged or less & so sexes.

So jaws of Lucanus sexual & variable
So horns of Sheep.
NB2 =Make stalk of variable parts= also in Coleoptera
5 11 19 23
Variation p40 43 48 62 64 to 70 76 79 & 80 85 98 100,2,5,7 137 139 141,4,8 186 191 204 213 241,2 250
Besides these species which are variable, it must be remembered how very many are rare & therefore may vary, but it is not known–
SB □β
40 Q variation of nervures p.43 do better case in genus Typhia Q
39 Neuration differs in sexes Q
48 –Q In Pompilus nervures differ in species & in individuals (p.4 Neuration of fundamental importance in classification of these Hymenoptera, as shown by Jurine
241 Excessive variability of shades of colour in Cerceris
I see I have note about Bugs being winged according to sex & variable individually

5 *7–9m/8u "to vary", 11–13m/13u "marked | constant"* **8** *18–19m*◆ **11** *16–18m/17u "great | genera", 21–23m* **19** *10–12m* **22** *15–23m* **23** *1–2m, 8m, 11–12m/8–18w* Important as showing some species are fertile, not owing to any general law, but to the peculiarities of their own propagation.– **39** *28–29m/Q* **40** *20–31m/21m/25m/27u "stigma nearly"/29m* **42** *31–33m* **43** *3–5m* **48** *18m/u "in | individuals"/16–19m/w* are different in Fossores in males & females V. p.39 *24–25m/u "P. | monstrosity"/20–25w* In allied families wings absent in females **62** *10m/u "of | posterior"* **64** *18–20m, 18–19u "which | Aporus"/w* a diff. genus **65** *15–19m/16–17u "and | punctured"* **67** *14m, 20–23m/20–21u "markings | wings"* **70** *3–4m, 3u "line | colour", 4u "traversing | not", 21–22m/21u "markings vary", 27–28m* **76** *33–35m* **79** *31–32u "third | petiolated"* **80** *6–8m* **85** *23–25m/u*± **98** *18–19m* **100** *23u "black ring", 24–25m/24u "sometimes obsolete", 27m/u "interrupted", 27–28u "yellow | margin"* **102** *12–13u "are | interrupted", 13–14m* **103** *15–19m/16u "male"/18u "multitude | species"* **104** *32u "abdomen", 33–34u "first | red", 34u "is | red"* **105** *1u "or black"/2u "sometimes"/3u "lacteous | of"/4u "segment"/1–4m* **107** *1–3m/2–3u "characters | mucro"* **137** *2–3u "yellow | above"* **139** *14–16m* **141** *34–35m/u*↔ **144** *9–11m, 9–10u "sometimes | only"* **148** *23u "sometimes", 24–26m, 25u "reduced | spot"* **149** *8u "variable | abdomen"* **152** *10–12m* **156** *11–12m* **186** *4–6m/w* These may be compared to the sports of Roses & Wheat **191** *14m* **204** *19–21m/21u "frequently entirely"* **205** *12–14m* **213** *3–5m* **241** *14–20m, 27–32m* **242** *4–6m, 26–29m/!!!, 29–30u "without | fault"* **250** *7–9m, 22–25m* **251** *1–2m, 7–8m*◆ **252** *8–10m, 15–17m*

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SIEBOLD, Carl Theodor Ernst von *On true parthenogenesis in moths and bees* trans. W.S. Dallas; London; John Van Voorst; 1857 [CUL, S]
beh, cc, cs, em, f, fg, hy, oo, phy, rd, sp, sx, v

NB1 Find single seed-bearers & mix pollen of two species or vars
p.70 order F. Smith get good description of Italian Bees
NB2 4; 34; 38; 53; 61; 68 to 75 vars of Bees; Crossing natural; 107; 107 Hooker – Gall-insects male & female in different galls
SB1 □β
p.4 long life of Spermatozoa – p.61
34 Female Psyches in rudimentary condition
53 Dzierzon on unfertilized eggs producing drones
68 Differences of Italian Bees – dark Bees appear amongst the Italian Bees Apis Ligustica p71.
69 Golden Bees more industrious & better tempered
70 References to the Bienenzeitung
72 fertile when crossed
107 on differences of sexes according to conditions of life of larvae of certain Hymenopter. insects.
106 sexes in Parthenogenesis

⟨fragment of a letter from B.D. Walsh of 25 February 1867⟩

4 *17–21m* **34** *17–26m/w* rudimentary state **38** *10–15m* **39** *22w* why ? *23–33w*◆ They are not fully developed & therefore are in degree in larvae state **53** *25–28m (Dzierzon)* **56** *24–28m (Dzierzon)* **61** *24–26m* **68** *4u "variety"/3–6m/w* F. Smith calls species *8–19m/9u "rusty | colour", 23–26m, 24u "amongst | yellow", 27u* *"praesentior | magis", wb*♦ V. original German to see whether in same hive **69** *1–3m, 5u "gold | Bees", 6u "together", 10u "cum | alvo"/w* same hive *16u "rectioribus cruribus"/w* ask F. Smith *20–22m, 25u "1806", 29u "Lago Maggiore", 32u "according | Spinola", 33u "also | Piedmont", 35–39m* **70** *1–8m, 20–22u "From | bee", 21–25m, 40–42m (Berlepsch)/w* order this book **71** *10u "crossings"/wt/1–10w* I must ascertain whether this refers to pure Italian Mothers. *14–16m/u↔, 14a "Italian"* crossed?? *20u "only", 21c "Such"/21–24m/w* I do not understand V. original **72** *24–32w* clearly much crossing has taken freely place & yet fertile **73** *5u "hybrid hives", 13–15m/14a "hybrid"* ized *18a "hybrid"* ised *19–20m* **74** *16–19m, 34–36m* **75** *7–12m, 14c "otherwise | say", 20a "hybrid"* ised **94** *25–34m (Herold)* **106** *27–32m* **107** *19–23m (L. Dufour)*

SIEBOLD, Carl Theodor Ernst von and STANNIUS, Hermann *Anatomie comparée,* 2 vols in 3 parts; Paris; De Roret; 1850 [CUL]
cs, em, fg, phy, sx, sy, tm

vol. 1, 1st part, NB ♦ p.12; p.22; p.34; p.48; p.51; p.70; p.106; p.142; p.170; p.221; p.223 like Land-Crabs; 229 Hirudo no metamorphosis–; Annelids Cephalobranches fertilised by means of water
12 *26–29m* **22** *1–3w* Larvae ? *4–6m* **34** *1–4m* **48** *21–24m, 40–42m* **51** *34–35m* **69** *1–2m* **70** *1–6m* **94** *15–19m* **106** *3–5m* **107** *4–8m* **142** *2–6m, 8–9m* **170** *5–8m, 7–11m* **221** *17–21m* **223** *6–9m* **229** *15–17m, 18–20m* **230** *14–17m* **231** *19–23m*

vol. 1, 2nd part, NB p.282; p.285; p.328; p.330; p.341 & 2; p.348; p.355; 520; 527; 535; 537; 568; 594
SB ❑β
330 Ampullaria Lungs & Branchiae
342 Male & female glands invaginated & yet leading to distinct orifices! p.348
529 Tardigradae, Arachnidae Hermaphrodite
282 *20–27m/11–31w* Is Herm. so must be able to cross **285** *6–7m* **328** *7–11m* **330** *37–41m* **341** *1–7m, 14–17m/16u "invaginés", 19m* **342** *1–14m/wt/1–16w* How striking as they arise from invaginated glands: showing bisexuality **343** *1–8m* **348** *5–11m, 10–17m, 30–34m* **355** *6–10m, wb* shows animal System not perfect, nowhere to put Sagitta, throughout exceptions made **400** *6–15m* **410** *6–7u "Monografisk | 1842"/7m (Kroeyer)* **418** *27–30m/!* **426** *1–6m* **433** *1–2m* **434** *27–31m* **436** *7m/u "yeux | facettes"* **443** *7–8m, 27m/u "Karsten | 20"* **445** *1–5m* **465** *10–18m* **470** *1–14w* glands for viscid substance **473** *20–24m* **476** *38–41m (Goodsir)* **477** *1–2m* **489** *32–35m (Rathke)/33u "Wiegmann", 36–37u "Erdl | 1843"* **491** *24m (Rathke), 28m (Goodsir), 33–39m/37–38u "Kröyer | Homerus"/w* Bell *38w* 1 *39u "Erdl | 18"/w* 2 **520** *17–21m* **521** *1–4m, 44→* **522** *28–31m* **526** *1–19m/w* curious case of poisons so different in two orders **527** *6–28m* **529** *wt/1–3w* see p.496 for references *5–9w* I cannot find out what *5–7w* only genera Milnesium Macrobiotus Enydium *9–12m, 13–14u "Les Tardigrades", 14u "hermaphrodites"/w* What are Tardigradae **535** *5u "des | très", 8u "entre | postérieures", 14u "prolongement | menton", 22–23m* **536** *18–19m, 21–25m* **537** *12u "aboutit | abdomen", 19–21m, 26–29m/w* peaking *40–43m (Menge)* **568** *13–16m* **594** *1–2m* **601** *22–27m*

vol. 2 ℘

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NB O/

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geo

NB George p369; p315 References on Denudation; decay of flints; 321 Denudation & Worms
xiii *7m, 13m, 26m* **xiv** *7m* **315** *27–31m (Taylor, Geikie)* **321** *4–20m* **369** *19–22m*

A SKETCH of a philosophy, part 2: Matter and molecular morphology London; Williams & Norgate; 1868 [Down] ℘

SMELLIE, William *The philosophy of natural history* Edinburgh & London; Elliot, Kay, Cadell & Robinson; 1790 [CUL, pre-B, I by J. Wedgwood, S C. Darwin Given me by my uncle J. Wedgwood]
beh, f, fg, he, is, mg, mm, oo, no, sl, sx, ta, y

NB Poor Book; p.139; p.146; p.150; 204; 254; 258; 282; 281; 310; 381; 389; 393; 396; 458; 462; 466; 472; 491; 500; 512; 515; 520
SB ❑β
p383 Marine Birds few eggs – Orang outang – Lions a good many p284
396 Pair of sparrows destroy 3360 caterpillars weekly
515 age of toad (Ch. 5)
513 age of some Big Birds.– Ravens & Geese lay a good many eggs, yet old livers – So with Carp, which lay so many eggs–

139 *14–19m* **146** *17–19m* **149** *22m/u "and | it"* **150** *5–11m* **151** *4–5m, 7–8m* **204** *19–21m* **253** *19u "seeds"/19–31w⟨not CD⟩* **254** *28–31m* **258** *6–9m, 29–32m* **281** *10–11m, 15–16m* **310** *3–14m* **381** *5w* V. p.383 *7–10m/7–32w/wb* What is probable cause of this? – Why should many struggling for life ultimately better succeed, than a few = Is it that young carnivores are protected by fierce parents in youth? – are parents long lived? or not destroyed by other animals? **383** *2a "carnivores"/wt* marine birds few eggs *4a "waters"/wt* crocodiles *2a "prolific"* Elephant, Ourang!!! *2a "quadrupeds"/wt* pooh. V. p.284 for Lions & tigers – contrasted with horse – sheep &c &c ! *2–4m/4u "who are all carnivores", 4–6m, 6–19w* Ostrich many eggs – Humming birds few eggs?? = does defending powers of parent cause few young ?◆ by◆ only few being destroyed? **389** *5–6m, 9–10m, 23–25m* **393** *20–22m/!/22u↔, 24u "annihilated | universal", 25–29!, 27u "single | permitted", 28–29m* **396** *1–4m* **397** *1m/u "and | weeks"* **454** *25–27m, 30m* **462** *13–14m/u "Dogs | generations", 30m* **466** *16–18m, 24–26m/24u "a | mark"/25u "impossible | immense", 28–30m/w/wb* This being habitually considered wonderful, shows how closely they resemble each other. **472** *9–12m* **491** *7–9m/w* occasional yet true migrations are of difficult explanation **500** *1–4m, 20–21m* **512** *7–8m, 27–29m (Buffon)* **513** *3u "Eagles", 6w* 41+? *11–12u "The pelican", 13u "eighty", 17u "twenty | years", 19–20m, 24u "knew | years", 26u "hundred | years"* **515** *8u "1 | years"/w* toad *20u "old toad", 21u "thirty | years"* **520** *10–11u "annihilation | species", 13–14w* islands!! *16u "would | this"/!*

SMITH, Alexander *The philosophy of morals* 2 vols.; London; Smith, Elder & Co.; 1835 [Down, JW]

SMITH, Andrew *Illustrations of the zoology of South Africa* 4 vols.; London; Smith, Elder & Co.; 1849 [CUL]
af, beh, ex, gd, geo, ig, is, mg, oo, sp, sx, sy, t, tm, v

vol. 1 SB ❑β
Macleay p6 Says importance of character inversely to variability
8 thinks anomalous groups merely mean links lost
5 *6–22m, 23–26m/23u "genus"* **6** *30–33m* **7** *1–5m, 19u "Natural arrangement"/18–29w* It may be asked what is meant by natural arrangement – first step vague.– if it is said affinities of animal – what does affinities mean? *29–32m/!, wb* most resemblances – endless disputes, sum of differences I conceive object is real relationships **8** *15–18m, 41–43m*

vol. 2 NB ◆ Pl.13 & 17 other vars. & colour; Pl.26.
SB ❐ℜ
Pl 13 & 17 other cases of vars. in colour – surprising =
& Pl 3 bright green good case of local var.
Pl. 26 good case of Local var of Lizards
Pl.77◆ **pl. 11–** *35–39m* **pl. 11+** *31m* **pl. 13–** *15m, 21–30m/w* see before good case of variation *36–37m* **pl. 18+** *1–3m* **pl. 27—** *15–16m* **pl. 38—** *8–9m* **pl. 38++** *32–33m* **pl. 39–** *32m* **pl. 39+** *9–12m* **pl. 78–** *22–26m*

vol. 3 SB1 ❐ℜ Aves
Pl vi; Pl ix; Pl xxii XX; Pl xx 9; Pl. 44; Pl 63; Pl 68 species replacing each other; Pl 110
SB2 ❑β
Pl ix one swallow taking others place periodically during migration of former.
Pl. xxii Variation of Beak – good sentence –
–44 Variation in size even 1/3 longer –
–63 many close representative species Cape & Senegal –
–110 A lark, which strikes its wings together in flying up
Pl. 7– *19–22m* **Pl. 10–** *33–36m* **pl. 23–** *35–39m* **pl. 30++** *13–16m* **pl. 45–** *1–10m, 15–16m* **pl. 64–** *22–30m* **pl. 69+** *14–17m* **pl. 110—** *26–27m*

vol. 4 SB ❐ℜ
Pl I
Pl.30 33 Q 38 one Antelope ranging further than other feeding together & then separating & one ranging further South – Thinks some animals as Elephant migrate from Will others from impulse.–
Catoblepas Gorgon

pl. 9– *zb* **pl. 14–** ⇑*7–3m* **pl. 29+** *26–41m/26u "proportion | herds"/28–30u±/w* Polygamy *36u "male | young"/35–39w* killed when expelled & not adults of others watching **pl. 31—** *21–23m/w* these two species have different habits.– vide next species *25–27m, 37–40m, wb* Every continent must once have been islands – hence representative species would radiate out & keep to their localities **pl. 31–** *13–20m* **pl. 32—** *30–33m/w* This is the other **pl. 33–** *25–27m* **pl. 39—** *1–3m* **pl. 39–** *36–40m* **pl. 42+** *wt* Koodoo

SMITH, Charles Hamilton *Dogs* (vols 9 & 10 of *The naturalist's library: Mammalia*) ed. W. Jardine; Edinburgh; W.H. Lizars; 1839–40 [CUL] af, beh, br, cc, cs, dg, ex, f, fg, fo, gd, he, hy, ig, mn, no, oo, phy, rd, sl, sp, sx, t, ti, tm, v, wd, y

vol. 9 NB1 ♦ It would appear that greater the difference as in pigs between parents greater the fertility, as long as difference is not connected with generative system. Infertility is not consequence of difference in size.
Dioecious & hermaphroditic flowers can be crossed.
NB2 What a case of confusion in the canines, what are species & what races especially the diurnal canines
75; 87 to 190; 239
p75 Reference to Pallas Works♦ Paper on Degeneration See Cuvier Eloge
SB □β
88 Australian Dingo not breeding at Paris Q
89 Capra tharal breeds easily with domestic goat
93 Young ♣ of feral boars striped this is a return of long latent character. as well as Tusks & bristles Q
94 Hair of tail in Indian Boar bristly & sagittated. Mem. W. Indies Q
96 Bos gaveus fertile. see Griffiths Animal Kingdom
101 Posterior branch of lower jaw in Mastiff, altered Q
98 Cuvier says Jackall comes nearest to Dog Q
106 Mastiffs always in temperate countries (Cuba Bloodhound, Aegyptian do N.Q.
119 Difference in gestation in domestic animals by Tessier
136 The Siberian race of Wolves easily known 148 various vars. of
152 Pallas on crossing of Black & White wolves & Dogs Q
155 says Black & White wolves keep separate from others (see Mauduyt pamphlet) (Ch. 6)
154 Doubts on distinctness of American & European wolves
168 The Red♦ wild Dogs of India destroy young Felidae

xii *10–13m, 13–15m* **75** *21m (Pallas)* **87** *1–6m, 13–17m, 17–20m* **88** *8–11m, 13–14m, 18–20m/?/14–22w* curious if true **89** *1–3m* **91** *3–17m* **93** *3–10m (Cuvier), 13–23m/*Q **94** *11–16m, 16–18*Q, 19–21m **95** *25–28m* **96** *19–23m (Griffith)* **97** *27–31m* **98** *17–19m* **100** *25–27m, wb* quite overlooks selection **101** *10–14m* **102** *20–24m (Cuvier)* **104** *3–19m, 22–24m/w* no! **105** *28–31m* **106** *19–23m* **108** *8–14m/wt/1–15w* I think several allied forms have lately been found **109** *6u "foxes", 32–33m* **110** *7–8m* **112** *17–21m* **117** *11–13m* **118** *3–5m* **119** *24–27m* **124** *21–24m, 30–31m* **125** *15–19m, 24–30m, wb* stories not being invented to show revenge in dogs, makes one believe it in monkeys **127** *1–5m* **129** *wb* is the Aguarachas related to fossil Hyena of Lund. **133** *30–31m* **136** *20–21u "Siberian race", 22–24m* **144** *13–21m* **148** *16–25m* **149** *2–17m* **150** *17–19m* **152** *16–23m, 31m (Pallas)* **154** *10–19m (J. Richardson)* **155** *6–10m/w* How known?! *26–31w/wb* good case, if true, of 3 allied & analogous species in the two continents **159** *24–28m (J. Richardson)* **168** *6–14m, 16–21m/16u "surmise"/18u "keep | increase"* **171** *11–15m/m*♦*/* **190** *25–26m/?* **239** *24–28m* **267** *8m/u "End | I."*

vol. 10 NB1 The analogy of sheep & Cattle makes me doubt Col. Smith hybrid view of dogs (supported with recent conditions & showing pains taken in old times) – for equal numbers must be used to make an intermediate breed & how many parent sources & these sources with characters more permanent (because since hybridised) than now, more acute greyhound – more ♣ brave bloodhound.– occasionally crossing produces effect merely like ordinary variation in excess & thus I believe in – as all hybrids are intermediate, we must suppose as many types as now varieties. How many does H. Smith make?
NB2 78 to 236♦ 302
Think over how many English Breeds how many in Zoolog Gardens & other parts of world & extinct kinds!!
SB □β
7 Q9 Mammae of Dogs 10 to 7
94 Ancient Dogs, few Q
103 Colour attended to in ancient dogs, Xenophon (Selection Ch I
104 no pendent ears in old Dogs except in one Aegyptian Dog p107 do
121 Feral Dogs of St Domingo Q
133 Newfoundland semi-palmated Q
156 Florida Indian Dog like Wolf of country Q✍
158 American dogs breeding freely with wolves of Country N.Q.
196 Pointers standing 1 1/4 hourQ
207 Bull-terrier a crossed Breed
210 Extinction of Dogs in Pacific
214 Q✍ Patagonian Dogs destroying poultry – Ears erected in all these
215 Fuegians value dogs
217 Mastiffs indifferent to form crosses with other Breeds!
218 Toes of Mastiff very generally a fifth in hind feet Q

243 Races of Foxes
Synopsis of Canidae at end.
⟨*over*⟩ The Plate of Alco dog shows hair growing round eyes

℘

78 *28–30m (Richardson)* **79** *8u "in|sow"*/Q *9–10u "species|intermixed", 10–14m (Daubenton), 15–16u "and|other"/w* hence variation *20–22m/w* (a) *wb* (a) I doubt any hybrid having unequal mammae **80** *7–9m, 10–13m/10–11u "albinism and melanism", 12–13u "they|generation"* **81** *15u "all|of", 16–17u "into|variety"* **82** *1m* **89** *1–2m, 8–10m, 16–17m, 21–23m* **94** *1–2m, 6–11m, 15–17m* **97** *1–15m, 14–19m* **99** *19–20m, 26–30m (Buffon)* **101** *17–25m* **102** *1–3m, 4–9m, 11–14m* **103** *9–10m, 11u "vulpine character", 16–20m/17u "were originally"/18–20u±* **104** *1–2m, 3–5m, 30–31m/30✍"…/31u "exception|instance"* **105** *2–5m/5✍…", 14–22m* **106** *28–31m* **107** *1–4m, 6–7?, 16–18m, 20–24m, 28–29m* **109** *13–15m* **110** *4–7m* **111** *18–21m* **113** *12–17m/14w* (a) *wb* (a) a most unclear rigmarole of old names, all these latter pages **116** *12–13m* **120** *11m, 11–12m* **121** *14–16u "large|ears"/m/*Q *22–23m/u↔, 26u "whitish-grey", 27u "slate coloured"* **122** *14–16m, 28–31m* **123** *1–3m/1u "blackish", 15–19m, 25–27m* **124** *3–8m, 17–19m/18u "webbed|furred"* **131** *3–4m, 24m* **132** *7–8m/*Q **133** *12–14m* **134** *13–16m/13–14u "Esquimaux|races"* **136** *22–26m* **137** *16–18m, 18–19u "till|innate"* **139** *8u "The|dog", 19u "Molossian|dog"* **140** *7u "The|dog", 14–16m/15–16u "called|Society"* **150** *18u "Turkmen|dog"* **152** *23u "yet|to"* **153** *1u "the|Domingo"* **154** *5u "The Drover", 6u "Firma in", 24m, 29–30m* **155** *28–29m* **156** *22–23m/*Q **157** *11u "the|national", 12u "like wolves", 19u "the Caygotte", 22–25m, 29–30u "The|resemble"* **158** *1–5m, 24–26m* **159** *6–11m* **160** *5–6m* **162** *1!!/u "such|modern", 3–7w* how little he knows of Selection *8–11m/9–10u "form|qualities", 23u "instead|smell"/w* Bull-dog! *25–26u↔, 29u "individual attachment"* **163** *12–16m* **164** *11–13m, 16–17m/17u "black"* **165** *4u "Russian|Tahtar", 6u "silky", 8u "Southern|Western", 10u "haired|those", 22–26m, 26–28m* **167** *13–15m/14u "personally attached"* **168** *1m/w* 1 *5–6m/w* 2 *14–15m/w* 3 **169** *12w* 4 **170** *1w* 5 **172** *3–5m (Bacon)/4–5u "idols|kennel", 11u "breeding-in destroys", 12u "after|first", 21–24m/22–23u "which|rough"* **174** *16–17u "that|many"* **175** *20u "long|ears"* **176** *17–18m* **180** *21–26m/25u "race", 26–31m* **181** *1u "small Hyaena", 3–4u "Lychaon pictus", 7–10m* **182** *8u "tigris", 12–13m* **184** *12–15m, 16–17u↔* **185** *1–4m* **188** *26–28m, 26–30m, wb* always overlooks the necessity of long selection to make a crossed-race **190** *14–16m/15u "more crossed"* **191** *20–22m, 27–28m* **194** *9–11m, 20m, 23–24m* **195** *3–4m, 11–15m* **196** *3–7m, 7–11m, 15–16m, 16–18/*Q **197** *1–4m* **198** *3–5m* **199** *12m* **200** *16–20m* **202** *19–22m* **203** *24–31m* **206** *26–31m* **207** *1–4m, 15–18m* **209** *11–14m, 14–16m* **210** *15–17m* **211** *9–26m, 27–29m* **213** *2–7m* **214** *2–7m, 15–17m, 18–20m, 22–24m, 28–31m* **215** *7–13m (FitzRoy)* **217** *14–16m* **218** *19–23m/*Q **219** *2–4m* **220** *4–5m* **221** *14–24m* **222** *17–22m* **224** *18–20m* **226** *25–27m* **227** *10–19m, 19–26m* **228** *10–12m* **236** *3–6m* **237** *28–31m* **238** *3–4m* **239** *10–12m* **242** *12–14m* **243** *15–16m/16u "smaller"* **244** *3–5m, 6u "black ring", 7u "more grizzled", 7–8u "Mr Pennant", 8u "cur foxes", 8–9w* V. this descript: *11u "without|mark", 12–17m/14u "become|the", 24–26m* **246** *13–15m* **248** *23–24m* **250** *5u "The|Fox"* **251** *11–13m/11u↔/12u "larger size"/13u↔, 18u↔* **252** *5–8m* **253** *29–31m (Cuvier, Richardson)* **265** *15–17m/16u "fifth"* **267** *10–13m (Lalande)* **268** *22–24m/22u↔* **269** *4–6m (Rüppel)* **276** *7–10m* **282** *5–8m (Lalande)* **284** *15–17m* **285** *18–20m* **289** *12u✍ "have small", 27u "odour offensive"* **302** *6–8m/8u "common|wolf", 10–13u±, 14u "is|south"*

SMITH, Charles Hamilton *Horses* (vol. 12 of "Mammalia" in the Naturalist's Library), ed. W. Jardine; Edinburgh; W.H. Lizars; 1841 [CUL]
hy, or, sp, sx, t, ti, v, wd

NF This work is reviewed in Veterinary for October? & November 1841
NB1 ☞ Mrs Hamilton Gray's Etruria says the figure of the old Etruscan horses are like◆ those of a Dongola breed
NB2 ix; xi; 63 to 120; 135; 145; 151; 156 to 185; 192; 199; 202; 207; 208; 210; 224; 237 to &c &c 266 to end

ix *1–2m* **xi** *7–9[…]/8u/c/w¢/9–12m/*Q*/11–13[…]/11u¢, 26u "curiously spotted"* **63** *19u "Tahtary|Ireland", 22–23m, 32u "some|Ireland"* **64** *13–16m, 20–21m/!/21u "other genera"* **65** *29–30m* **66** *4u "upwards|surface", 5–8m/w* ice period! **67** ✍ *10–11u "existence|type", 12u±, 13u "Asia, Africa", 14u "Mediterranean", 19m/u "cannot have", 27–30m* **68** ✍ *2–5m/!, 7–10m* **69** ✍ *1–3m, 8–16m, 18–19m, wb* it certainly is no greater difficulty in supposing many pairs, than one pair produced.– **70** ✍ *8–10m, 14–18m, 28–29u↔* **71** ✍ *17u "1821", 22u "five|after"* **72** ✍, *5–9m, 16–25m, 22u "plurality"/26–33w* point of comparison between varieties & species crossing **73** ✍ *4–8m, 11u "one|species", 14u*

"Equus caballus", 16–31m **75** *1–2m*✍*/u*✍ *"it | noticed", 14–15m, 23–25!!/m* **76** *27–29m, 29–33m* **82** *3–9m* **85** *4–6m (Moses)* **87** *32–33m* **91** *2u "feral"/w* good word **94** *16–18m* **95** *20–23m (Herodotus, Aristotle, Pliny)* **101** *17–18m/17u*↔, *19u "still | Axia", 20–23m, 21u "Attention | in"* **103** *22–25m/24u "in | fortieth"* **106** *1–4m, 7–10m, 12–24m* **109** *18–20*Q *20–22m, 21u "a | colour"* **110** *31–32m* **112** *7–10m* **116** *15–19m, 22–23m* **120** *7u "poneys"/?, 8–14m/w* are these now different??? **121** *zb* **135** *3–4m*✍, *4–7m, 11–12m* **140** *9–12m* **141** *7–8m* **145** *12–19m* **148** *7u "Forster", 10u "Pallas", 11–22m* **151** *19–26m* **156** *1–2m/u "Great | highlands", 3–12m/6–10m/7–8u "the | black"* **157** *24–25m* **158** *20–23m/20u "Prussia"* **159** *2–4m/3u "eelback dun"* **160** *17–20m* **163** *11–15m, 16a "Tarpans"* ie wild horses *16–18m/17u "tan | mouse"* **164** *12–15m, 15–20m* **165** *5–7m* **168** *14–18m (Virgil), 23–27m* **169** *3–6m* **173** *21–22m* **174** *24–25m (Rengger)/25u "1537", wb* 3 authors **175** *13–16m, 25–26m, 31m* **176** *8–11m, 13–21m, 14–15m, 30–31m* **178** *21–25m, 24–25m* **179** *1–3m, 5–7m/5u "mostly bay"* **181** *26–31m* **182** *23–28m* **183** *1–3m, 6–9m, 29–31m* **184** *5–15m* **192** *4–7m* **199** *12–19m/14u "five great stirpes"/w* what? *19u "some | seals", 20u "the | brown", 22–25m* **202** *21–23m, 25–27m* **207** *25–31m* **208** *19–21*Q *21–23m/w* 5 stocks **210** *27–29m* **224** *14–15m* **237** *24–28m* **243** *24–31m* **253** *5–11m, 18–23m* **266** *24–29m* **268** *17–20m* **269** *13–16m, 23–24m* **274** *wt* chesnut *1–9m, 7–9m, 12–26m, 28–29m* **275** *2m/2–3u "when | grey", 3–5m, 5–10m, 13u "divergent | chestnut", 14–16m, 15–16m, 18–19w* Kutch & Malay Archipel. *21–22x*✎, *23–25m/23u*✍ *"dun | the", 25–26u "without | cause", 26–27m/26u*✍ *"dappled"* **276** *28–31m* **277** *1–4m* **280** *22–23x*✎, *24–29m* **281** *6–8m, 10–11m, 28–31m* **283** *10–16m* **284** *12–16m* **285** *6–16m, 28–31m* **286** *14–23m* **287** *11–13m* **288** *7–10m, 10–11m* **289** *3–6m* **290** *3–7m, 19–24m* **292** *24–32m* **293** *1–5m, 13–20m* **299** *5–6m* **304** *16m/w* Bands on legs *22–27m (Banks), wb* Not likely from Zebra Cross **307** *1–21w* Utter confusion of species **308** *3–6m* **309** *16–20m* **313** *3–7m, 12–14m/14u, 24–25m* **314** *4–10m, 13–15m, 16m (Pliny)* **316** *5–8m* **318** *8–11m/*Q **319** *29–31m (Duvaucel)* **334** *16–18m (F. Cuvier)* **337** *7–11m* **338** *13m, 22–25m* **339** *11u "two | camel", 13u "including | chartreux", 15u "cat | Pennant", 16u "tortoiseshell cat", 17u "originally indigenous", 21u "females | preserve"/w* bosch! **340** *6–10m* **342** *2–13m* **343** *1–6m, 11u "female | ass", 14–15m, 15u "slate-coloured", 30u "mule | indifference"* **344** *22–26m* **345** *16–17m/16u "grey | Egypt", 22–23m/22u "race | large", 31u "dun | breed"* **346** *7–12m/10u "two | female"* **348** *7–9m/8u "claim | demonstrations"* **facing 352** *1?, wb* a Doubtful species–

SMITH, Charles Hamilton *The natural history of the human species* Edinburgh, W.H. Lizars; London, Henry G. Bohn; 1852 [CUL] geo, gr, se, t, ti

NB1 Australian Geologists BoulderO
NB2 ☞ p.47 change in river flowing into Caspian of the Euxus
◆ 116; 117; 146
Nothing May 30 1857

47 *wt* Consider proofs of uprising of Siberia.– Erratus? no I think before Glacial Deposits *wt* Cd the Caspian have joined the Japan Sea *4–5m, 24–25*→ **48** *6–10m/2–9w* See Murchison *13–27m* **49** *20–25m/21w* Fish *26–27*→ **50** *22–27m* **116** *7–12m/*Q **117** *6–8m/w* what an argument *21–22m* **146** *5–10m*

SMITH, James Edward *The English flora* 4 vols.; London; Longman, Hurst, Rees, Orme, Brown & Green; 1824–28 [Down, pre-B, ED] che, fg, gd, oo, sp, tm, v, wd

vol. 1 NB1 Well worth while to plant seeds of common teazel & see if they cd be turned into hooked teazel; Preserve⟨*CD?*⟩
NB2 ✍ Verbascum Nineveh
329 first flowers 5-cleft subsequently 4-cleft; Preserve ⟨CD?⟩
NB3 5

5 *22–24m* **280** *wb* Proved by Henslow, see Hooker that they are same species– grow mixed at Down in same field – foliage different **306** *36–39m (W. Hooker)* **308** *44u*✏ *"3 | high"* **309** *1u "seldom branched", 3u "decurrent", 4u "covered | sides", 11–15m, 38u "yard high", 39u "panicled | top", 41u "dark | above", 42–43u "not decurrent"* **311** *wt*✍ Dec 4 1862 Rev. W. A. Leighton says he has tried this repeatedly on V. virgatum with like result X *9–17m, 40–43m, wb*✍ I suspect end to partial capsule: & blow ants incidentally like chloroform on stamens of Picaberg.– **329** *35–36m* **333** *9–22m, 45m* **334** *4–9m* **339** *zb*

vol. 2 NB Maple Rare in Scotland; p337 Great variation in seeds of Spergula, but in no other part
38 *34u "central | coloured"* **39** *35–38m/36u "one"/37u "neutral | red"* **218** *14m, 16–17w* V. Down Nov.5 **231** *2m, 17u "rare | Scotland"* **337** *33–38m, 40–48m* **398** *wb* Down. Oct. 13/42/ Found a Bramble with 9 or 10 petals.

vol. 3 NB 157 Subularia
93 *wb* in colour & size of flower – in shape

SMITH, J.E., ENGLISH FLORA
of spots on lower lip in their absence or in their being white or yellow – Down **108** *wb* Found wild Thyme with no stamens. Down Oct.13./42 **126** *wb* Down **157** *24u "always"* **252** *13–15u±, 17u "slightly* | *tips", 21u*↔ **427** *1–5m, 7u "barren florets", 8u "reddish Corolla"* **433** *42–46m*/Q **434** *31–34m*

vol. 4 NB 149 Acorn out of Pheasant crop grew
23 *wb* July 2d found snow white Conopsea 1843 – Down. **32** *32–34m* **43** *24m* **149** *32–36m, 38–43m, 42u "why* | *error", 43u "contrary* | *botanists"*

SMITH, James Edward *A grammar of botany, illustrative of artificial, as well as natural, classification, with an explanation of Jussieu's system* London; Longman, Hurst, Rees, Orme & Brown; 1821 [Down, on B, ED]
sy, tm

NF Preserve
20 *5–7m, 13–14m, 18–19m* **21** *9–26m* **22** *1–4m* **28** *1–4m, 18–20m, 24–28m* **29** *1–4m, 7–10m* **30** *2–18m* **40** *wt* There are figures illustrating each class **42** *2–3w* ♣ Geranium *6w* Broom *18–19w* compound flower *22w* orchis **43** *1–12m/4w* Nettles *14–16w* Mosses, Ferns **45** *11m*

SMITH, James Edward *An introduction to physiological and systematcal botany* 4th edn; London; 1819 [Down, pre-B, ED]

41 *4–6m, 10–13m* **62** *19–25m* **63** *26–29m* **64** *20–21m* **69** *21–24m, 28–29m* **149** *16–19m* **150** *6–7m, 27–29m* **217** *16–17m* **227** *5–6m* **231** *2–6m* **232** *14–16m* **241** *20–23m* **244** *17–19m* **247** *15–17m* **250** *1–2m, 7–10m* **253** *26–27m* **256** *25–27m* **257** *15–17m* **385** *13–15m* **387** *11–14m*

SMITH, J. Toulmin *The Ventriculidae of the chalk* London; Richard & John E. Taylor; 1858 [Down] ℘

SNELL, Karl *Die Schöpfung des Menschen* Leipzig; Arnold; 1863 [CUL]
r

NB ✍ p.54 Remarks on me; 103♦; O/
54 *12m*

SOLE, Francesco *Il Positivismo* Napoli; V. Morano; 1881 [Down] ℘

SOLE, Francesco *Su la sensazione* Napoli; V. Morano; 1882 [Down, I] ℘

SOLIS Y RIVADENEYRA, Antonio de *Historia de la conquista de Mexico* Madrid; Antonio Fernandez; 1790 [Down, pre-B, S]

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SOMERVILLE, Mary *On the connexion of the physical sciences* London; John Murray; 1834 [Down, on B, S, ED]

NB z
℘

SOMERVILLE, Mary *On molecular and microscopic science* 2vols.; London; John Murray; 1869 [Down] ℘

SORET, J. Louis *François Pictet, notice biographique* Genève; Ramboz & Schuchardt; 1872 [Down]

SOWERBY, John Edward, JOHNSON, Charles and JOHNSON, C. Pierpoint *British poisonous plants* 2nd edn; London; John Van Voorst; 1861 [Down] ℘

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SPENCER, Herbert *The data of ethics* London; Williams & Norgate; 1879 [Down, I]

SPENCER, Herbert *Descriptive sociology* London; Williams & Norgate; 1873 [Down]

SPENCER, Herbert *Education: intellectual, moral and physical* London; G. Mainwaring; 1861 [Down]

NB O/

SPENCER, Herbert *Essays, scientific, political and speculative* (2nd series); London; Williams & Norgate; 1863 [Down]
beh, phy, t, tm

NB 138 Definition of Emotion & Sensations
title page *wb* 1863✎
℘
106 *30–31m, 33–35m* **107** *20–21m/21u*↔ **109** *11–15x*✏*/m/11c "For"/"...", 12u "existing force", 14–15u "must* | *somewhere"* **110** *wt* after I speak of grinding teeth cont◗ the sensor, give H.S. view that the nerve force is thus

expended instead of exciting♦ goes to feeling & thought. *1–2m, 15–18m/w* the nervous energy is concentrated in the mind **111** *wt* not in Love or gentle dislike or despair *1–2u±/w* why *14u "purposeless"/13–20w* so for frantic gestures of rage or intense grief *23–26u±/27u✏ "organs | speech", 31–34m/w* sobbing must be explained *36?/u "extra action"* **112** *8–10m, 11u "undirected energy", 17u✏ "upper | are"/8–17w* Give this under Man under direct action *27–34m✏/29–32u±/w* why *32–35m* **114** *wt/1–28w* but why does the kid amuse persons even if it causes laughter – a bore might interrupt the train & yet not cause Laughter or enough anger to take off superfluous nervous power *15–18m/15"..., / 17x✏, wb* Use of voice goes with pleasure by calling social members to each other – to parents – to other sex. **116** *wt* [Can any idea or remembrance stimulate or depress the brain – does it not first act on the circulatory system & this excite or depress the brain??] *1–3w* [As hurting a nerve does so, probably it can] *22–27m/24u "falling jaw"/20–23w* passive wonder **118** *28–36m* **119** *wb* He seems to conclude when sensorium excited a certain quantity of nerve force is generated, which must flow off in thought, sention muscular or glandular action.– **135** *5–7m* **137** *11–13m/w* & so the idea of snake **138** *7u, 13u, 18–19u* **139** *3u, 5–6u*
℘

SPENCER, Herbert *First principles* 6 issues; London; G. Mainwaring, Williams & Norgate; 1860–62 [CUL, S in no. 1] ℘

SPENCER, Herbert *First principles* 2nd edn; London; Williams & Norgate; 1867 [Down, S]

⟨*markings presumed to be by FD*⟩

SPENCER, Herbert *Grundlagen der Philosophie* trans. B. Vetter; Stuttgart; E. Schweizerbart; 1875 [Down] ℘

SPENCER, Herbert *The principles of biology* vols 1 & 2 bound together; London; Williams & Norgate; 1864–67 [Botany School, S]
ad, af, cc, ch, ct, ds, em, fg, h, he, hl, hy, mn, no, oo, or, phy, sh, sl, sp, sx, t, tm, ud, v, wd

vol. 1 **NB1** 186♦ nisus formativus; 179 Pangenesis; p.181 Pang.; 186 Use & Nisus; 191 Use
NB2 p.243♦; 244♦; 240; 248 – 249 Use; 254 Pangenesis Theory of Generation when limb of Newt cut off tadpole – ◊ – limb not proved 259♦; 260♦; 262 – Twins; 264; 269 Man acted on unequally♦ differently by same power; 272♦; 309,10♦; 316♦
NB3 p.383 Vertebrae number cannot be accounted for by type
NB4 ✍ 445 Sp Theory; 451–2 used under Domestication
455 small jaws in civilized Man

47 *21–23m* **179** *32–35m* **180** *34–36m* **181** *1–5m, 10–28m, 24–26m* **182** *wt/1–5w* like my attention on elective affinity **183** *19–24m/19u "physiological", 22u "physiological units"* **186** *19–26m* **191** *21–29m* **243** *15–18m (Sedgwick)* **244** *32–35m (White Cooper)* **248** *18–20m* **249** *9–13m* **253** *22–25m, 29–31m, 30–31m/31–32u "undifferentiated cell"* **254** *1–3m, 5–8m, 13–16m/w* Pan *15–16m/"..."✏, 18–20m, 24–28m* **255** *1u "Heredity", 13–21m/"..."✏, 14–18m/w* Pan⟨*u*✎⟩, *16u "on | large", 21–31m/w* shows that he has not got idea *23–34m✎, 26"...♦✏, 34..."✏* **256** *6–13"..."✏/7–12m✎* **259** *3–6m/4w* increase *8–10m* **260** *1–3m, 7–12m* **261** *20–25m* **262** *3–14m* **264** *1–7m* **269** *19–21m* **272** *1–6m/w* Monsters? **274** *4–10m/x/5"...* **279** *20–26m/x* **285** *wt* Chapt XI *8m/8–10"..."* **286** *6–10m* **289** *34z* **309** *25–35m* **310** *1–3m* **316** *2–8m* **383** *5–14m* **435** *11–17m* **445** *14–19m, 20m/u "maintained | produced"* **449** *29–34m* **450** *10–14m* **451** *5–6m, 12–16m* **452** *5–11m, 13u "The | skull", 14u "seated | thickened", 16u "vertebrae | neck", 17u "ligaments", 18u "muscles", 21u "upper dorsal", 22u "spines", 26u "bones | legs", 27–35m/34u "blood | nerves"/w* Use wd come in– **455** *20–22m* **456** *4–7m/w* feet smaller? **457** *1–3m* **468** *25–31m/"..."*

vol. 2 **NB1** O/
NB2 Direct action
145 Laws of Variation
147 shape of flowers
151 to 154 do
157–158 Umbelliferae
Hooker disagrees about Umbellifers
NB3 185♦; 188♦; 201 Origin of Vertebrae
Copied 233 – direct action
Explains first cause of change in prototype organisms
NB4 ✏ not abstracted
NB5 ✍
326 How animals acquired Lungs in shallow water.–
399 Struggle for existence & Law of Increase
NB6
♦ 428 He does not understand Pangenesis
☞

SPENCER, PRINCS. BIOL.

✍

437 Bears on Hybridism

◆ 439 Antagonism between growth & Reproduction for Pangenesis

401 Causes which determine degree of fertility

409; 471 to 473

✏ X470; 416 Male fish guarding nest ask further

SB1 ⟨*not CD*⟩ ❑β

Vol 1

383 Good about vertebrae. Why are those of the sacrum anchylosed together?

445 Speaks of the importance of Nat. Select. in <u>maintaining</u> as well as producing structures

Vol. 2

145 on the general relation of form to conditions 147 in relation of obliquity of flowers to their position

151 Do – with respect to Peloric flowers.

157 discusses outer florets of Umbelliferae & Compositae. Hooker disbelieves

185 "the naked Gasteropods in losing their shells have lost that immense one-sided development of the alimentary system which fitted them to their shells, & have acquired that bi-lateral symmetry of external figure which fits them to their habits of locomotion; but the reproductive system remains one-sided, because in respect to it, the relations to external conditions remain one-sided"

188 Discusses one-sided fishes

201 argues well with Amphioxus that the muscles first gave rise to Vertebrae but first of all to the Neural Spines (see quotation of Owens')

233 argues from bulk & cells outside & inside of leaves on the effects of external conditions

⟨*CD*⟩ 346 Origin of Nerves

⟨*over*⟩ Herbert Spencer Principles of Biology

SB2

That many structures are directly related to differn of the incident forces, as highly probably as shown by Mr H Spen, but hard to distinguish from selective spontaneous variations. But ♣ p.253 it is difficult to bring proof of such [Direct Action]

p.263 flow of sap – origin of vessels

p.269; p.270 p.273 p.274; p.276; p.278; 280; 287; 294

See note of err. I have marked all

296–97 Thickened epidermis Origin of Horns, Nails, hoofs

301 formation of teeth & Hairs

313; 319; Laws of Variation

H. Spencer No. 16 Vol. 2 (<u>Not abstracted</u>)

⟨*over*⟩ ◆, ➾

I am inclined to attach ♣ much weight to ♣ Mr Spen's ♣ views & inquest; but they do not ♣ harmon with the method followed in this work of giving the variations actually observed under domestication, so that I will ♣ say no more on this head.

SB3 No. 16 H. Spencer

253◆ <u>direct action</u>; 269,58 trunks of trees ✍ by exuding sap Use & Disuse; 263 formation of vessels by elongation of cells; ✍ Sap & vessels 273 274 direct action – ✍ Species; 287 first formation of skin; 297 Origin of thickened epidermis by use✍ & of spurs on Birds wings Sp. Theory; 313 gizzard hardened; ✍ Ch. 3. IV & V **SB4** ❑β ➾

p399–473 Rate of Increase & Struggle for existence

The conclusion is that fertility is increased on demand by N. selection, according as wanted too great an increase being an evil to the species – producing more than can take, but that will not injure individuals, but each mother expends more than is necessary. She who produces few eggs will produce better eggs – But there is limit to possible amount of fertility going on by individuation of organism & expenditure in vital actions & growth.– [I think there is error, the <u>individuals</u> who produce much young, wd not be themselves or offspring injured, & them that produce few wd not profit.–]

⟨*over*⟩ ◆✏ ⟨*a fragment of note relating to Westwood, Insects, 1840, vol.2, p.541*⟩

37 *1–6m* **93** *8–11m, 16–23m* **144** *22–24m/c/w¢/ "..."* **145** *1–7m/2"...* **146** *fig.m* **147** *19–28m* **151** *26–30m/1–30w/wb* Plantains are on spike by ✂, ↕*w* May it not be that insects visit indifferently male ✂ an upright ✂ **153** *22–36m* **154** *3–13m* **157** *11–18m* **158** *26–30m, 32–36m* **185** *27–36m/→* **188** *18–34m* **201** *7–19m* **233** *4–10m, wb* Bark cells – outside & inside of leaves **253** *8–14m, 16–20m/→* **254** *1–30m/4–18w* but how distinguish relations *12–17m* **258** *22–31m* **263** *5–10m, 17–20m* **269** *25–29m/ "..."*✍ **270** *7–25w* spiral winder hundreds of feet in length! **273** *25–32m* **274** *11–15m* **276** *21–27m* **277** *7–10m⟨FD?⟩* **278** *20–25m* **280** *23–28m* **287** *9–24m* **289** *23–25m/24–30w* in man, but in lower anims yes **294** *26–33m* **296** *25–34m/9–32w* But then a sort of spur grows to wing of Blackbird & claw of tail of Lion **297** *12–15m, 18–19u "nails | horns", 27–29m, 33–36m* **299** *2–8m* **301** *1–11m* **313** *26–36m (J. Hunter)* **319** *22–34m* **326** *1–12m* **338** *16–27m* **345** *17–24m/18–19w* Rickets children **354** *17–24m* **368** *27–31m* **369** *6–9m* **375** *23–27m/26u* *"interdependence | parts"* **398** *22–28m, 30–35m* **399** *21–30m* **400** *29x* **401** *1–3m, 14–17m/16–17u "major | mortality", 22–26m* **402** *25–30m/x* **403** *23–26m* **407** *19–22m* **409** *1–2m, 31–35m* **416** *34–36m* **428** *7–9m/8u "or | part"* **437** *14–24m* **439** *11–31m (Carpenter)* **470** *wt* I must confine my remarks to beings equally highly organised *wt* (1867) Chapt II to XI *1–10m* **471** *9–21m/x* **472** *14–27m/x* **473** *15–28m*

SPENCER, Herbert *The principles of psychology* London; Longman, Brown, Green & Longman; 1855 [CUL, I]
beh, hl, ig, t

NB1 178 swimming; 330–332 essential unity of intellect & instincts; 400◆; 410 High & Low; 539 Instinct
Trick, in studying sense & habit – if inherited are comparable to ♣ or rather identical with 2 ways in which instincts are acquired; & 2 ways in which corporeal structures acquired.–
573 Man 596 Expression
⟨*other w not CD*⟩
NB2 ⟨*not CD*⟩

viii *30m/wb* Here he explains how gradation necessarily comes into play **21** *14–15m* **117** *zt* **400** *21–23m, 25u "ability | decompose", 26u "Water"* **401** *1–14m (Schultze), 36m* **402** *15–22m* **410** *7–11m/8–9w* Well put **411** *26–32m* **415** *20c "heron", 20w* hawk *21c "fish", 21w* heron **539** *3–7m* **540** *5–10m, 16–23m (Carpenter)* **542** *33–35m* **573** *16–21m* **596** *9–15w* also alludes to in Essays *10–32m/11–18"..."* **599** *31–36m*

SPENCER, Herbert *The principles of psychology* 2nd edn, 2 vols.; London; Williams & Norgate; 1870–72 [CUL, S]

vol. 1 NB ⟨*by FD*⟩
⟨*most markings probably by FD*⟩
⟨*CD*⟩ **131** *⇑4–2,* **138** *12–18m* **140** *15–17m* **141** *11–15m* **323** *⇑13–11m* **324** *⇑15–13m/14u "organism | duration"* **377** *11–13m* **390** *⇑10–1m/?* **391** *⇑15–10m* **515** *7–11m* **614** *⇑4–1m* **615** *14–19m*

vol. 2 *543 11–13w* fingers! **546** *⇑5–1m/w* quite other○ Gratiolet **552** *6–15m/"..."/]/w* Slyness – checking the turning of the head to look to one side **556** *2u "every feeling"/wb* love *5u "degree | strength"/w* No *1–4m, ⇑11–7m/⇑10u "conceal | primary"*

SPENCER, Herbert *The principles of sociology* London; Williams & Norgate; 1874–77 [Down] ℘

SPENCER, Herbert *The study of sociology* 6th edn; London; Henry S. King & Co.; 1877 [Down]

SPENGEL, Johann Wilhelm *Die Fortschritte des Darwinismus* Köln; E.H. Maner; 1874 [CUL, I]
h, ig, mm, phy, sh, sp, sx, t, tm, v

NB protective colours of shells
Nakedness of Man
Put note ◊
on Physiologcal cause why has Hand escaped I may be quite wrong
⟨*words torn away at top of cover*⟩

5 *18u "Planulaten", 1–23m/w* Chains of species connected *21–24u±* **6** *4–9m/w* Surely I give this view *12–14m* **8** *1–3m* **10** *23–26m* **19** *wt* whether I could show that the long Hand in Chimpanzee are touching organs *12–15m* **27** *27–28?* **71** *1–6m/3u "adaptive", 7u "Strahlen | Flecken", 12u "dunkelbraune Schale", 16–17u↔* **73** *16m* **77** *11m* **80** *16–10m/18–19u "aus | werden"/18–25w* Universally rejected – Nakedness is a sexual character **82** *4u "Adern"/w* veins *7–10m*

SPIX, Johann Baptist von and MARTIUS, Carl Friedrich Philipp von *Travels in Brazil* 2 vols.; London; Longman, Hurst, Rees, Orme, Brown & Green; 1824 [CUL, pre-B, on B, S Chas. Darwin Buenos Aires]
beh, cc, geo, gr, mi, t

vol. 1, 108 *8w* & Slavery **110** *16–17?* **164** *7–8?, 9–11?* **214** *19c "a mile"/w* 8 miles **216** *wt/1–27w* when I visited this spot in 1832 this retired cottage was uninhabited **220** *8c "granite"/w* gneiss *19–21?, 22–23?, wb* on this coast there is no shelter for their growth **221** *wt* Insecta Arachnida Zoophytes Testacea! **247** *wt/1–16w* All this appears to me much exaggerated **273** *2–6m* **289** *9–19m* **290** *1–7m, 17–30m* **291** *7–22m* **301** *8–19m*

vol. 2, 51 *3–30m* **117** *24–30m/26–28!/28u "from | N.E."* **136** *24–30m* **137** *1–29m* **138** *17–31m* **147** *18–27m* **152** *18–30m* **154** *12–20m* **156** *1–30m* **158** *1–28m* **164** *1–30m/8u "incumbent", 26–27u "decomposed"* **168** *16w* p164 **172** *wb* The Lithomarge cannot be decomposed Gneiss – if it contains Topazes & the solid ⟨*w*✂⟩ difficult **173** *27–36m/w* Germany *wb* The altered mica is here also incumbent **185** *8–28m* **187** *3–9m* **189** *23–28m* **211** *zb* **270** *1–17m* **273** *14–22m*◆ **281** *11–26m*

SPRENGEL, Christian Konrad *Das entdeckte Geheimnis der Natur im Bau und in der*

SPRENGEL

Befruchtung der Blumen Berlin; F. Vieweg; 1793 [CUL, pre-B, S]

ad, beh, cr, cs, dic, f, fg, gd, hy, mhp, mm, mn, no, oo, phy, rd, sx, sy, t, ta, tm, ud, v, wd, y

NF He treats of forms of seeds with reference to means of distribution

NB1 It would be worth while to cross Vinca to see if it would then produce seeds–

♦ x✎ Strong case of Dichogamy in Paridaceae in Gaertner Bastard p.65

Gaertner Bastard p.537 a most weak argument against final cause of Honey to attract insects

586♦ speaks of it as general law that male & female organs are ready at same time – at p. 659 contradicted

♦ Gaertners Beiträge must be studied all about Honey p.75–92

p.242 attributes all C.C. Sprengel facts to praecosity of pistil.–

♦ Kolreuter 3d Fort p127 on movement of pistil to anthers in Compositae & on other cases of movement: this latter subject largely described by Gaertner in Beitrage –

March 19. 59. Lathraea squamaria visited by Bombus – right at top pistil bends slightly over towards passages, projecting & apparently ready, but pollen not shed Yet pollen on stigma for Bee – In lower (& earlier) flower pollen shedding, so that here female organs apparently ready first.

p.415 on Spiders haunting plants with nectar: mem Willy's remark on Listera

NB2 260 on the red Lychnis flowering at different period from the whites ask Henslow or Babington or Watson

♦ p.367 Seeds diff shape from disk & &374 Margin of Picris Composite flower –

✐ Flower of males larger than of Females

March 30 – 46 – Read straight through from 1 to 223♦ 299. Read all

Only subjects not on crossing X✎

Good case of mechanical action comparable to action of pollen on head – for no use in seeds being different →

☞ 369 Differences in shape of seed in Disc & centre of Composit.

374 do – (this must be a correlation of structure, & perhaps owing to insects) Figures of 3 kinds from same flower

371 On stigma in Compositae bringing out Pollen – Rudimentary organ useful

383 do – otherwise rudimentary – very curious case

Watch Acacia – Put pollen of own & other var. of Cabbage & shut up flowers

♦ X✎ Lobelia – Crucianella; Examine next spring; Arnica to see how far passage closed X✎; Aristolochia whether insects can escape; Honey in night in Orchis morio; Impregnation of Ophys & seeding of try crossing & see whether some seed; Heartease – whether night insects do the work; Castrate common Pea, several & impregnate several & see if Bees go for pollen or Honey, as perhaps they wd not visit pollen-less Peas.–; Arum about filament about insects escaping; Fraxinella if my account accurate

SB1 ❑β

2 Iris only by Bees

8 Violets

3 Flys impregnate Orchis 21 & 23 do

4 Epilobium impregnated from younger flowers – same in Euphorbia

16 marks on Corolla to guide insects none on right flower

18 was not aware of use of crossing Bees boring holes dispose necessity of his marks.

42 pollen generally ready first

43 quite as many dichogamous, as dioecious & monoecious

61 case of Salvia

106 Butterflies – Phlox – Dichog:

111 On Campanula read

117 Phyteuma = does not get dusted in room X✎ (one of Campanulaceae) ♣ Solanaceae ♣ p126 & 167 Passiflora, stigma not ready during the second day whilst another moving up. (Mention after Barberry) probably night flower

186 Allium in same case with Parnassia

212 Horse chesnuts, probably Dichogam.

240 Kalmia like Barberry, moves on being touched

244 Saxifraga saw fly impregnated

SB2 ❑β

249 Dianthus dichogam, & yet stated to be impregnated in close flowers

296 saw ants carry pollen (Nothing to show Dichogamy in this class

346 Hollyock Dichogam.

354 does not understand impregnation of Pea.

358 on depression of wings in Bean-flowers & other Legum. causing exsertion of Pistil & anthers so Bees impregnate – whole structure of flower with rectangular pistils fitted for this end – Keel springs up slowly to old position

359 Phaseolus, does not know about one side – hairs of pistil brush out pollen; thinks a dichogamit.

390 violet – cavity full of pollen stopped by

pistil from being shaken out; curved point of stigma moved by bees
394 can know when no Bee has visited by no shed pollen –
395 proved it by putting gauze over
397. does not know much about Heartease
SB3 ❑β Kurr
⟨*over*⟩ ⟨*List of plants supposed to be fertilised by the wind*⟩
⟨*over*⟩ In one of the Ray Soc. Report Bot. Paper a long description on position of nectars in Veg K.
SB4 ❑β
403 Orchis latifolia – thinks this impregnate – never saw Bees.– has never seen nectar in. calls them sham-nectar producers – nectary within hairy – look at night –
405 Butterfly orchis has nectar – smells at night – probably a moth impregnation
406 Listera ovata has nectar & visited by Ichneumon (p407) with 2 pairs on head. 409 Next year other cases & Beetles. Saw the act of impregnation effected.
414 often see Flies in Epipactis, cd not be impregnated without insects
415 saw fly remove the pollen-masses & has figured it sticking on back.–
419 Aristolochia from structure cannot be impreg. without insects – 421 f, many flies on with pollen on 423 thinks flies cannot escape owing to smoothness of bottom of trap & from number, but Mem Arum may be here introduced to show how then little insects can carry pollen.–
over
⟨*over*⟩ 426. No, flies cannot escape on account of hair in passage – 428 Fabricius has made same remark – (Does not say has f. many dead flies)
⟨*over*⟩ ⟨*List of dichogamous species*⟩
SB5 ❒ℜ
✍ Tussilago or Petasites vulgaris type if grows disc hermaphrodite say female (some plants all female & so Senecio vulgaris); Pistil acts in brushing out pollen but has no stigma.; Antennaria always dioicous.–; Pimpinella magna – tends to have some exclusively male; Anthriscus sylvestris say floret with imperfect stigma & no stamens. thinks never sets seeds.–
P◗ see Babington for seeds on orchids & Viola○; Picris = Helminthia
✏ Tabulate how many Dichogamous & species
Henslow. Aug 13/1857

1 *wb* Hairs protect nectar from Rain **2** *22–25w* Corolla coloured to attract bees◆

insects *29–30m, wb* Iris can be impregnated only by Bees **3** *8–12w* see p. 5 *26–29w* hairs of pistil to keep pollen *30–32m/w* (a) *wb* (a) Flys impregnate Orchis morio & latifolia & Aristolochia in former attracted by colour, as if there was nectar of wh. there is none **4** *37w/wb* N.B. Epilob. august & Nigella pistil always impreg. by Bees from pollen of younger flowers – Reverse in Euphorbia **5** *wb* In this page upsets at other uses of Nectar **7** *5–10w*◆ Most perhaps all Nectar plants require (W) insects for impreg. *12–13w* P *wb* P. Bees carry pollen as well, wh. Nectar, as when pollen-hunting **8** *17u "Märzveilchen"/w* 1 *30w* 2 *wb* 1. Violets require Bees for impregnat (2) Most hermaph. flowers require insects for their impregnat. **12** *36m, wb* Suppose all these contrivances only to protect nectar wh he imagines protected even at expense of anthers! **14** *wb* C.D. The permanence of standard of Kidney-Beans, when lower petals are decayed, shows that the petals serve other protecting ends besides nectar **15** *6u "haaricht"/3–9w* I do not think explains use of hairs on lower lip of foxglove *16–18m/w* stel. Vp.29X *18–21w*◆ all nectar-flowers have corolla.– *22–28w* He says p.19 Euphorbia has nectar!!! *29–34w* Euphorbia has no true corolla R. Brown○ **16** *wt* Marks on corolla guide insects *10m, 39a "ihnen"/35u "Nachtblumen"/"...", 38u "Saftmaal", 39u "ihnen* | *Statt"* **17** *34–36m/36u "kürzer* | *Dichogamie"* **18** *1–25w* Seems to think fact of insects being required at all does not deserve any explanation & how poor a one of Dichogamy for convenience of insects – !! *14–16m/14u "jeder* | *gewählt"/15–16u "nicht* | *kann", 22–23u "halbgetrennten* | *ähnlich", 25–33m/w* How poor! *30w* (a) *37a "Schirmblumen"/u "ganzen Familien"/36–37w* dichogam *wb* (a) Has no notion of advantage of intermarriage **19** *4u "Euphorbia", 5u Blume", 13→, 14u "Saftblume ist", 20–22m/w* How poor! as in p.18 *23m, 32–40m/w* First & last flowers in the true kind Dichogam must remain unimpregnat *wb* This kind of Dichogamy requires secretion of nectar for long time, as both old & young flowers must be visited; final cause? **20** *wt* (a) some plants as Euphorbia & Umbellifera visited by insects /all kinds & visited irregular in manner; not so other flowers *3–5m/4w* (a) *13–22u±, Says Bees guided to Antirrhinum by the saft-maal; but has the Purple Linaria a saft-maal.– No whole flower slightly veined but* ✍ not there more than elsewhere **21** *9u "Fliegen", 10u "Asclepias", 14u↔, 37–39m, wb*

X abortive florets of Golden Rose & Centenary ♣ act for this end V. Viburnum **23** *3–4u "kleine Fliege"/4u "Serapias longifolia"/5u "Staubkölbchen"/4–5w* Serapias ophidious **24** *5–9m/7w* z *34–35u "aus | Saft", 38–41m, wb* z Directions for finding nectary **25** *2u "Blasensüsse | Blumen"* **27** *7–15m, 9–10m/9u "Gewächse | Treibhause", 15u "Jasione", 19–20u "Coronilla Emerus", 30–31m/30u "wenigstens | Art"/w* (a) *33–36m, wb* (a) I saw one in Allen's garden a Campanula **28** *5–6u↔, 38–41m/w* (a) *wb* (a) Bees attracted by their beauty to some flowers without nectar, for pollen &c &c fructify them **29** *wt* So then he disbelieves pistil bending down & touching anthers. *7w* Elder *8–12m, 14–16m, 14–20m/16w* P *21–25m, 23–24m/23w* L. *31–37m, 38w* These are Hermaph flowers impregnated by wind *wb* P Hostile to my theory.– are many mono or dioecious plants saft-leer, if so less so – Carex? **30** *3–8w* Quantity of pollen in Poplar & Pinus sylv. *15–18m/w* male catkins larger than females **31** *23u♠/24u♠/20–23m/w* Horse willows impreg by insects *27u♠/31u "den | werden"/27–34w* Hence flowers without nectar are impreg by insects [but have pollen] *37–41m, 43a "liegen"/m/w* allow to intermingle this being so & being large or pollen plentiful, with *wb* XX <u>Important</u> to discover what <u>hermaph</u> flowers, are impregnat by wind **32** *24a/u/wπ, 32w* secretion, but serving for no other end?? *wb* Q flowers before leaves not to prevent impreg. by wind & before leaves of other trees **33** *wt* M. case of false final cause <u>very poor</u> *17w* M **34** *19–22m/w* no, not in wheat **35** *34–38w* 18 days longest duration of flowers! *34–35u "achtzehn", 41–45w* flowers fade after fruct. **36** *11m, wb* X in Scrophularia, stamens move to pistils one after other but S says they are dichogamous – female first **37** *wt* P. hidden flowers exhale much odour *11–13m/w* P **40** *wt* (a) Anthers & stigma in same place that Bees may touch both *7m, 29–31m/w* (a) *wb* * & yet Bees bore holes in the Salvia & Stachys! **42** *21–23m/w* (a) *26–28m/26–31w* Hairs on underside of Foxglove to keep off rain! *31–32u "dass | herabhangende", 33–34m/34u "regular | müssen", wb* (a) how generally he seems to think pollen is mature first **43** *1u♠, 6u "Linde", 7u♠, 8u "Bienen nicht", 9u♠, 14–17m, 17–20m/17–24w* no! I saw small ones at holes & reverse *27u "irgend"/24w* P *27–28m/"...", 34–36m, 42u "Schirmblumen | Euphorbien", 43–44m, wb* P. If this had been 'always' instead of 'ever' it would have been correct perhaps **45** *wt* compares nectar of fresh seeds *15–18m/w* m *28w* P *32–34m/w* o *wb* Hence relation of plants to mammals *wb* o Seeds which are eaten are conspicuous like nectar-flowers **46** *37–44m/w* considers the vast numbers of seeds necessary for some to be preserved **47** *1w* X means Read *4X, 30w* requires insects **49** *1X* **50** *1X, 24–26m, 25u "Dichogamist", 26u "männlich weiblicher", 27u "Antheren"* **52** *8u "dass | findet", 10u "von | um"* **55** *wb* insect impregnation **58** *12x* **61** *5–10m, 15–18m* **63** *7–9m/7u "männlich weiblicher"* **64** *25x* **65** *12–13u "dass | ist", 29x/u♠* **66** *5u♠/4–6m/4–14w* male flowers larger than female in order that insects may visit male first *25u♠/26u "grösser sind"/17–41w✐* So in Strawberries Gardners Chronicle Aug 1861 & so in Wild Thyme– **67** *8x* **68** *2x* **69** *3u↔, 6a/u "keinesweges | mechanische"/w* gives good reasons *19–20m, 39x, 41x* **70** *43x* **72** *wt* X analogous to Hive Bees at Humble Apertures. *4–5m* **74** *24–30w* Iris impregnated by pollen of distinct flowers **75** *31–35m, 40–41m/u↔, wb* iris must be impregnated by Bee which has come from another flower **79** *32x/w* Rye *38u "Saftdrüse", 39–41m, ↕w* (a) I observed in every spike of a Rye-grass anthers hanging & pistils feathering, projecting on one (or both?) sides of scales so as to be easy of impreg – observed this in one other grass. *wb* In Introduction confesses he knows no use for nectar in grasses & this upsets his theory of its <u>sole</u> use.– I kept wheat in glass & was astonished at one night how many long stamens were produced – hence fruct effected by wind, as he remarks; but the Pistil in the wheat, though very healthy, seemed quite concealed. One day in (a) **81** *8x* **82** *3x, 4–5w* large marginal florets, that insects may see flower from side, as well as from above – *14m, 20–22m, 24–36m/29–31w* Candy tuft *wb* The variation in marginal florets of Viburnum good instance of structure being acquired – CD **83** *40–42m/40–41u↔/w* (a) *wb* (a) pollen first ready **84** *20x, 39x* **85** *1–3m, 1u "Ameisen", 1–2u "in | hineinsteckten", 8x* **91** *1–25[...]* **94** *2–6m/w* cannot be impregnated by wind but by insects *21x* **97** *33–37m/35w* (a) *wb*♦ ● *wb* Dichogam, males first ready **98** *1–6m, 20–25m, 32x* **100** *44–45u "Dichogamisten | Art"* **101** *39x* **102** *13–15m/13u "Kultur"/14–15u "Saftmaal | können", 28w*♦ Nothing *28x, 30x* **103** *7x* **104** *25x, 28u "Saft | ich", 29u "Saftblume ist"* **105** *18x, 20x, 42–43m/43u "Dichogamist", wb* Manlich dichogam **106** *1–3m, 4–7m, 12m/u "Schmetterlingen"/x* **108** *13u "sondern | Insekten", 15u "Krone zukehren"* **109** *28m* **110** *32–34m/33u "älteren", 43–44m* **111** *8–*

10m/u "können | ist", 22–24m, 36–37m/w (a) *40–44m/w* no real explanat *wb* Perhaps it is so in Menganthes, but impregnation does not necessarily follow **113** *11x* **115** *5–13w* dichogam manlich **117** *25u "dieselben | jüngeren", 26–27u "das | oder", 28u "Erfahrung | überzeugen", 32m, wb* in some stigma got no pollen, field covered with it **120** *15x* **121** *11x* **122** *2–26w* knows nothing whatever in whole Genus No Honey discernable **129** *5–6u "Sie | besucht"* **130** *41w* not Solenaceae **131** *11–16m/w* stigma turned from anthers **135** *12m* **137** *17–18m, 20–22m, 31–35m, 35–37m, 41–42u↔/42x* **139** *17x* **141** *8–11m* **142** *43–45m/44u*♠ **143** *7–9m, 11–12m, 13–15m, 19–20m* **145** *16–20m, 28–30m/29u "Bemühung vergebens", 31u "kleine Wespe", 33u "nachging"* **146** *27–28m* **149** *38–39u "welche | Füssen"* **150** *4x, 19x/18–19u "bloss | wegen"* **152** *17–19m/17–18u "dass | Art", 44m* **154** *21–23m/22–23u "für | bestimmt"* **156** *wt* it is evident that many genera are dichogamous *1u "diese Blumen", 3u "zwar | männlich", 6–7u "Noch | IV", 7m* **157** *25x/w* plenty? *29–37m/33w* (a) *wb* Last umbells planted or plant had imperfect pistil; became dichogamous & therefore useless & no pollen or other flowers **158** *2–3u "Schirmblumen | Griffel", 40u "von | Dichogamie"* **159** *19–20m, 23–24m, 23u "geschlechtslose"* **160** *5–6u "Saft | Blumenkäfer", 8x* **164** *31u "3 | auf", 31–33m/33u "nicht | kurz", 34–35u↔* **166** *10x, wb*♦ Next page Pollen ready on stamen one after other other move stigma not formed – so dichogamous **167** *4–7m/5–6u "nicht | geblieben", 8u "von | Insekt", 14–18m/16u "verlängern"/17u "das | hinlegt", 33–34u "fünf | sieben", 34–36m/35u "und | verwelkt", 42–45m/42–45u±* **168** *33–36m/33u "drey verschiedenen"/35u "Ein Umstand"/37u "Kennzeichen | Dichogamie"* **169** *wt* (a) How is Loaca in these respects). *5–6m, 7w* (a) *35–39m, wb* On mechanical theory successive rising of stamens useless **170** *23–26m/w* this should be not is *35–39m/35–38u↔* **171** *1–2m/1u "Stigma | ist", 33–36!/35–36m* **172** *22–23m/w* (a) *wb* Cover some plants day & night – some by day – some by night **173** *20–23m/w* B *25–26u "Ob | Geheimniss", 26u "nicht entdeckt", 28u "als | kann", 41x* **182** *11–17w* this & snowdrop can have not be impreg. except by insects **184** *22u "ein | Dichogamist"* **186** *5–7u±, 9u "männlich | Dichogamist"* **187** *26X, 27x* **188** *wb* Martagon enclosed seeded – hence Spr. cannot see thinks exception use of Nectar & 6 stamens – ! I can, occasional intermarriage **189** *29m/x* **190** *32–37m/32–24w* nectar impreg. not easy **199** *29–34w* a feather hyacinth **200** *31–32u↔* **201** *wt* feather-hyacinth **203** *7–12m/7u "Dass | befruchtet"/10–11u "und | Krone"* **204** *39–45m* **205** *wb* Berberis more than anthers might on stigma **207** *23u "also wahrscheinlich", 24u "Insekten", 25u "staubvolle"* **209** *4x, 6–8m/6–7u "die | Geschlechts", wb*∞ 2 May 61 **210** *1u "Schein | männlichen", 22–23u "Wind | Stigma", wb*♦ associated plants must be in same predicament *wb/1–7w* Dioecious plants are produced where self-impregnat. too easy??? Hence is it that so many trees each having so many flowers all dioecious?? See to this for my theory **211** *25–32m, 41–44m/43–44u*♠ **212** *2u "immer | Dichogamie", 21w* (a) *25u*♠*, 27–28u "Trauben | viel", 28u "Strauchs", 31–32m, 35–36u "eine | Krone", wb* (a) Horse-chesnuts probably dichogam ♣ **213** *3–6m/4u "mehr | Zwitterblumen", 5w* (a) *14w* (a) Veratum nigrum has many male flowers **214** *14x* **216** *23u "männlich-weiblicher", 45X* **219** *1–2m* **220** *33u "die | weibliche", 45X* **221** *4u "Nachtinsekt"* **223** *10x/w* from p.1 to here **225** *wb* stamens ready first saw Bees impregnating **226** *25w* (a) *25–26u*♠*, wb* same **229** *40–41m/41u "mechanische geschehe", 42u*♠*, 43u "angezeigt"* **230** *25x* **231** *2x* **232** *14u "Befruchtung durch"* **233** *28–42[...]* **234** *32–34m/33u "Dichogamie | findet"* **238** *11x, 15u "von | berührt"* **240** *5–7m/w* (a) *25x, wb* (a) This, as I thought, appears like case of self-impregnation.– **243** *26–27w* Dichog. **244** *16u "Fliege", 16–17u "habe | angesehen", 22u "jüngen", 23u "hineingekrochen", 26u "eine | Blume", 44X* **245** *16–18m, 19u "Dichogamie", 45X* **247** *15x, wb* I found this Dichogam. June 2d 1861 **249** *24w* (a) *24–25u "das | Stigmate", 32u*♠*, wb* & yet Editor of Annales des Sc. says impreg. before opening **252** *zb* **255** *31–32m/u "ihrer Einrichtung", 41x* **258** *17u↔/?, 24–27m, 33–35m/?!/w* no *37–38u "Nachtinsekten | nicht"* **259** *38–40m/38u "als Nachtblumen", 43u "sondern | Loch"/42–45w* Humble Bees bite holes **260** *5–9m/5u "weiblichen"/6u "weiter", 6u "männlichen"/7u "zwanzig", 34–38m/36–37*Q *44x* **261** *37x* **262** *15–17m/16–17u "Spergula | Dichogamie"* **263** *6u "männlich | Dichogamist"* **264** *5–6m, 8u "dichogamischer Einrichtung"* **266** *4x, 7–8m, 15–16m, 16u "Käser | andere", 24–26m, 25u "zuerst | Dichogamie", 35–37m, 35u "denn | Pistill"* **268** *18x* **269** *35x* **270** *6m, 7x* **272** *29x, 31–32m/u "denn | können"* **273** *5–7m, 6u "Bienen befruchtet", 6u "wahrscheinlich", 9u "leicht wegblassen", 18x* **277** *17x* **278** *13–15m/14–15u "sie | sind", 31x* **279** *22–23u "Blumen | Antheren", 23–25m, 39x, 41x* **280** *3u↔, 4m, 6–9m, 21–22m, 28x, 30x, wb* Bees biting holes

287 *6–8m* **289** *12–13m, 20–23m, 32x* **295** *wt/1–19w* Repeatedly shows that impregnation is not by mechanical act; such movements appear chiefly to favour insects *15u "mechanischer Befruchtungsart"* **296** *26u "Ameise", 30w* saw ants impregnate **305** *7u "Auch | Dichogamist"* **307** *29x* **308** *5–6m* **309** *6X* **315** *23x, 31–32m, wb* hole cut. **316** *5m/u "häufig besucht", 12x, 28x* **317** *25–29m, 3x, 32x* **319** *42–45m/43–44u "Staub | abstreifen"* **320** *1u↔, 13u "Bienen", 14–16m/16u "sondern | Horn", 24–26m, wb* Bites holes **321** *32x* **323** *36–37m/36u "weiblich | Statt"* **324** *23–26m* **325** *1–2m, 12x, 44m* **326** *22–24m/23u "sie ein"* **327** *3x* **329** *wt* Nothing in class to show Dichogamy **335** *4x* **336** *20m/20–21u↔, wb* Lindley thinks in Pelargoniums this is effect of culture **341** *26–28m* **342** *3–4m/u↔* **343** *24–28w* Skimmed **344** *40x* **345** *6x* **346** *26–29m/29u "zwischen | sind", 43–45m/45u "älterer Blume"* **347** *14u "Um | vermuthlich", 23x* **349** *23x* **350** *16u "scheint", 17u "Dichogamie", 30x, 32x, 33u "Saftblume"* **351** *31x, 33x* **352** *15–17m/16u "keinen | gefunden", 29–30m/w* (B) *36–36m/w* (a) *40u ↔, wb* (a) In Gardeners Chronicle humbles were said to bite base of Bean-flowers **353** *4x, 6a "tinctoria"* saw Humble at Shrewsbury sucking flower *9u "keinen", 11x, 12u "keinen Saft", 16u↔, 21x, 23x* **354** *7–8m, 8x, 31x, 37–38u↔/38x* **355** *42u "vermuthlich | Befruchtung"* **356** *wb* He knows of Honey on the stipulae **357** *13x, 29–31m, 29u "oberen", 30u "Loch", wb* Holes **358** *5–6u "dass | waren", 6–11m, 13–20m/13u♠, 29–31m* **359** *26–44m/32–40w* Kidney Bean *42w* (a) *wb* (a) Does not mention Bees always going on one side **360** *3–6m, 8–9u↔, 27m, 28w* K *27x, 29x, wb* K bites holes **361** *42x* **363** *2x* **364** *14x* **365** *14–28[...]/15u "Saftblumen", 30x* **366** *23x, 24w* = Helminthia *25x* **367** *17–27m/17u "des | Scheibe", 21w* seeds *21–23u "Die | besetzt"/Q 24–25u "Seite | besetzt", 27x* **368** *15x, 24u "den | besucht"* **369** *14x, 19u "Bienen ungemein", 38x* **370** *26–31m/28u "wenn | Befruchtung"/30–31u "sondern | sind", 36x, 47x* **371** *17–18m, 28–29m* **373** *7x* **374** *10x, 27m/Q 30m, 41–43m* **377** *3x, 5–37[...]* **379** *27u "von | Insekt", 33–35m, 42u "Insekten", 43u "nützlich", 44u "schädlich"* **380** *13x* **381** *3–6m/3–4u "geschlechts | saftleeren", 15–17m, 36x, 38x* **382** *28u "Insekten geschieht", 29–33m* **383** *12–16m/12–13u "Sie | Zwitterblumen", 32–36m/w* (a) *39–41m, wb* (Q) a most curious case of abortive organ being made useful, like marsupial bone in some male marsupial animals **384** *1u "Blume hineinschieben", 11u♠, 19x* **385** *27x* **386** *3u "männlich-weiblicher", 4], 6[* **388** *29m, 37–38m, 45X* **389** *34u "vollkommen trocken"/w* (a) *wb* (a) like that of Kalmia – I have no doubt this is case with Allen Wedg plant wh does not seed **390** *11–20m* **391** *10–12m/11u "bestaubt", 11u "nothwendig | Theil", 21–22m* **394** *6–9m* **395** *3–9m, 39x, 40x* **397** *6–8u±, 16–17m, 35–37m/w* (a) *40–42m, wb* (a) as I have seen *44–45m/wb* no **400** *5–8m/w* (a) *13x, wb* (a) From Henslows account is common to genus. But I believe at different periods **402** *4x, 34X/u "Bewegung machte"* **403** *10–11m/11u "es | wollen", 19–21m, 23–25m/23u "niemals"/24u "Saft | angetroffen", 38–39m/u "inwendig | ist", 44–45m, 44u "Scheinsaftblume", wb*✐ I am nearly sure nectary of Butterfly covered with growths **404** *wt*✐ Cannot be deceptive for insect has at once to fly to catch florets *1–6m, 7–21w*✐ p.418 Aristolochia clematitis *14u "Osterluzen", 32a "Morio"* fresh winged *35–36m/35u "Scheinsaft", 41u "beweist Orchis", 44–45m/45u "nur | Samen", wb*✐ Little flies often on stigma can stigma secrete sweet better **405** *1–8m/1u "26"/2u "42"/2–5u±, 9u "wohlriechendes"/w* Habenaria, Butterfly orchis certainly *26u "der Saft", 27w* nectar *35u "das | vortrefflich", 36u "Nachtblume ist"* **406** *5–7m/6u "mit | versehenen", 12–14m/14x/u "Serapias | verdeckt", 16x/w* Listera *24X/u "trockner", 28–30m, 41X* **407** *8–11m/10–11u "denselben | vergebens", 12–14m/12u "ähnliches | Insekt"/13u "zwey Staubkölbchenpaare", 18m/a/u "ähnliches"/w* 3d *19–22m/20u "ablecken konnte", 29u "jeder | Zeit", 36–38m, 37u "abzulecken", 40m, 43–45u±, 45m, wb*♦ Would succeed only by stickiness of stigma **408** *20u "oder | ankleben", 27–28u↔, 38u "Absicht", 38–40u±/40m, wb* X otherwise he would have caught a third hair **409** *6u "wieder", 7u "an | Kopf", 8u "einen | Käser", 10u "Kopfschmuck", 17–21m, wb* X saw act of impregnation by Hymenopt **411** *25w* One of the Ophrydiae) Lind Epipactis *26X, wb* = Ep palustris – I think this – certainly this No or Cephalanthus ensifolia – this latter I now believe **413** *31–34m, 42–45m, wb* He does not really understand this flower **414** *10–11u/w* with Insekts *12–21m/14–15u↔/18–19u "weil | habe", 22–45w* He probably examined only flowers which had gone off *wb* he forgot to look whether any sticky contrivance to anther He overlooked the spherical rostella **415** *21–27m/w* Saw fly with pollen mass on Back *30–45m, wb* Remarks about spiders making nets on plants which afford nectar **418** *7x* **419** *17–18u "Alsdenn | seiner", 20–21u "Alsdenn | geöffnet", 28–29m, 42–45m* **420** *12–16m, 45X* **421** *32–34m/33u "zuweilen"zehn", 38u "vor | kleinsten", 44–45u "dass | ansetzen"* **422** *28u "Muth-*

massung", 34–35u "dergleichen | habe"/35–36u "dass | bestimmt"/34–40w so let flys escape or go to other flowers? **423** *2–36w* All this passage a priori reasoning V. vulpa *41u "schliess | theils", 42–45m/45u "vielleicht | glatt", wb* If the flies were really imprisoned – this would be strongest case except perhaps Zostera of self impregnat. remember Figs **424** *wt* Nothing, for he could not found nectar in Beans *1–4m, 23–24u "dass | ansetzen"* **425** *wt*♦ X Why do so few flowers, then, produce seed which he has insisted on as explained? *17m/u "jedesmal", 38–40m/40u "sondern | Art"* **426** *5–8m, 8–10m, 38–39m* **427** *12u "muss | leicht", 23–27m/23a "Zustand"* of ripe pollen stigma *46–48m* **428** *26u "nicht | verwelkt", 37–39m* **429** *9–11u↔, 12x, 14x, 21x, 34–35m* **430** *17x, 24u♠, 25u♠, 27u "kleinen Fruchtknoten"* **431** *wt*♦ According to my notions all associated plants ought to be essentially dioecious (as single trees are) *4–6m, 15–16u "so | finden", 24–26u "Die | an", 28x, 30x, 36u↔, 38x, 40x, wb* The ● is perpetuated like insects-plants Most plants – seeds are perpetuated like wind – dioicious plant **432** *1u "keinen Saft", 12u "Stigmate | gross", 14x, 16x, 27–28u "unansehnlich | Krone"* **433** *2x, 4–12[...], 14x, 40–42m/41u "die | voller"* **434** *17–18m/18u "so | Stielen", 44x* **435** *2–22x/14–15u "Die | grösser", 24x, 34–35u "die | weiblichen"* **436** *34x, 39–41m/40–41u "vielen | weiblichen", 42x* **437** *4x, 17u "Irrthum", 18u "die | männlichen", 30–31u±* **438** *24x* **439** *25–26u↔, 42–45m/43–44u "sehr | wird"* **440** *18u "Lütschen", 20–21u "ganzen | Körper", 22u "aber | Theile", 26u "keine Blätter", 29u "weit | Stiel", 43x* **441** *2x, 4u "männlichen", 5u "weiblichen", 10x, 12u "weiblichen", 26x, 28x* **442** *24–25u↔, 27u "längeren | sitzen", 33u "aber | vorhanden", 38u "einmal | weise", 39u "welche | hervorgebracht", 44x* **443** *3x* **444** *11x* **tab.i** *z* **tab.xx** *w* Speak of it as seed (acherium) It is calyx which differs Tussilago is superflua Picris aequalis

STAINTON, Henry Tibbats *A manual of British butterflies and moths* 2 vols.; London; John Van Voorst; 1857 [CUL, GD]

⟨*markings presumed to be by GD*⟩

STEBBING, Thomas Roscoe Rede *Essays on Darwinism* London; Longman, Green & Co.; 1871 [Down, I]

NB O/

STEENSTRUP, Johann Japetus *On the alternation of generations* trans. G. Busk; London; The Ray Society; 1845 [CUL]
beh, ct, em, fg, gd, in, mn, oo, sx, t, ta, tm, y

NB1 It is clear in each successive stage of development, that the young are formed from what he calls germs, little aggregations of cells, & that these go through regular gradations, in each stage; I do not know how they can be distinguished from ova– Jun. 63/so my notion on ♣ difference of true generations & buds destroyed.–
NB2 Abstracted March 1857
p.1; p.2; p.3; p.6; p.13; p.23; p.25; p.31; p.43; p.45; p.71; p.96
F.W. Fish almost normally have Trematoda within eyes
112; 113; 114

1 *20–23m* **2** *31–35m* **3** *23–27m, 32–33m* **4** *19–22?* **6** *32–37m* **13** *20–23m, 30–31?, 32–33?* **23** *27–29m, wb* so Medusa does not pass through state of Polype ☞ Owen **24** *wt/1–27w* This comparison of polyp-formed nurses *1–7w*♦ with neuter Bees very loose indeed! [The nurse is a compound body & larvae are not formed by simple section – *wt/1–7w*♦ (which I imagine are more like Medusae than the Medusae larvae) *7a "or"* a *31–35m/w* This shows power of division at all periods *wb* I do not think propagation at any time of life by division odd **25** *4–6m/5–6u "belongs | other"* **31** *30u "perfect | Medusae", 34–38m/35u "their"* **43** *1–3m* **45** *11–14m* **46** *17–20m, 38–40m, wb* I cannot anywhere see that the foster generation is <u>seminal</u> **71** *6–8m/7u "originally from"* **92** *16m* **96** *29–32!* **113** *1–3m, 16–18x/!, 17m/u↔, 18u "also | sex", wb* X Because males with aborted organs wd not have the proper instincts→ **114** *5–6m, 7–10w*♦⟨*CD?*⟩ connected with end *10–13m, 13–37w* – analogous to common metamorphosis & hence the bud-like system of generation returned *16–38w*♦The generative system supervening later in life ought **115** *14–25m, wb* Termes are Neuropterous insects

STEENSTRUP, Johann Japetus *Hectocotyldannebsen* Kjöbenhavn; Bianco Luno; 1856 [Down, I]

STEENSTRUP, Johann Japetus and LÜTKEN, Christian Frederick *Bichagtil Kundskab om det aabne Hans Snyltekrebs og Lernaer samt om ... parasitike Coprepoder* Kjöbenhavn; 1861 [Down, I by Steenstrup] ℘

STEPHENS, James Francis *Illustrations of British entomology* 2 vols.; London; Baldwin & Cradock; 1828–29 [CUL, on B]

STEPHENS, ENTOMOLOGY
vol. 1, 5 *22w* p27 *24w* p74 **6** *33–35m, 40–41m* **7** *1–30m, 30m/u↔, 31–42m* **8** *1m, 26u↔, 27m/w* Brinston Butterfly **10** *18w* clouded sulphur **24** *41w* Wood-white **27** *2w* Black-veined White **28** *20m/u "12 Cynthias"* **30** *10w* Heath fritillary **32** *23w* Small fritillary **33** *21w* Plantain fritillary **37** *3w* Lesser silver spotted fritillary **39** *22m/w* Great fritillary **40** *17w* The Great Fritillary **42** *4w* The dale common *37w* The great Tortoise shell **43** *32w* The lesser tortoise shell **44** *15w* Peacock **45** *4w* Camberwell beauty **46** *7w* The admiral **47** *23w* Painted lady **50** *11w* The purple emperor **52** *4w* White admiral or admirella **54** *23w* Speckled wood **55** *6–7w* The Gt. Argus or Wall B. **56** *14w* The Grayling B. **57** *26w* The martled White **58** *27w* The Gatekeeper **59** *18w* The meadow Brown **60** *8w* The Ringlet **64** *38w* Scarce Heath **75** *29w* The Brown Hair Streak **76** *18w* Purple Hair Streak **78** *17w* The Green Butter. **79** *22w* The Copper **81** *8w* Large Copper **85** *5w* The Azure Blue **86** *4w* Bedford Blue **87** *14w* Argus Blue **88** *26w* Chalk Hill Blue **89** *36w* The Chifden Blue **91** *29w* The Blue B. **93** *26w* Silver studded Blue **94** *27w* Edged Brown Argus **95** *13w* White-spot Brown **97** *19w* Grizzle B **98** *12w* Dingy skipper **100** *7w* Chequered skipper **101** *15w* Small skipper *32w* Large Skipper **102** *19w* Pearl skipper

vol. 2, 2 *wb* L. nocturne p86 Semidiurne p140 **35** *25–27m*

STEPHENS, James Francis *Illustrations of British entomology* vols. 3 and 4; London; Baldwin & Cradock; 1829 [Down, on B]

STEPHENS, James Francis *A manual of British Coleoptera* London; Longman, Orme, Brown, Green & Longman; 1839 [Down, I to FD]

⟨markings presumed to be by FD⟩

STEPHENS, James Francis *A systematic catalogue of British insects* 2 vols; London; Baldwin & Cradock; 1829 [CUL, pre-B]
gd, v

⟨untranscribed w: names of places where CD has seen the species listed⟩
⟨some w not CD⟩
vol. 1, 2 *7w, 12w, 18–20m, 31w* Hope *39–40w* **3** *7m, 13w, 25w, 38w* **4** *1–2w, 8w, 25w, 29–30m, wb* **5** *26m* **6** *11–12w* **7** *8m, 16–17w* **8** *15w, 32w* **9** *14w, 23m, 34w* **10** *8–9w, 12m, 19–20w, 30m* **11** *15–17w* Hope and Thompson *27w, 32w* **12** *2–3w, 12m, 22w* Hope *32w* **13** *1–3w, 8m, 16w, 18w, 20w, 29m, 35w, 38–39w* **14** *5w* Waterhouse *8m* **15** *10–11w, 14w, 21–24w, 31–32w* **16** *13m, 21m, 32–33m, 40–41w* **17** *11–12w, 20–21w, 26w, 31–32w, 36w, 41m* **18** *6w, 7–22m, 14w* Waterhouse *24w, 40–42m/40w* A. Cooper *43w* Mr Waterhouse **19** *14–16m/w, 37–39m* **20** *7–9w, 15w, 21m, 26m, 34w, 37–38w, 42w* **21** *1w, 4w, 11w, 23w, 27w, 32w, 41w* **22** *3w, 6w, 10w, 25–26w, 39–40w,* **23** *5w, 11w, 16w, 19m, 24w, 34w, 37w, 39w, 40w, 41w, 44w* **24** *15w* Mr Waterhouse *9m, 16w, 21m, 26–27w, 32–34w, 38w* **25** *6–8w, 32w, 41m* **26** *9m, 16w, 19w, 22w, 31w, 33w* **27** *1w, 7w, 19w, 22w, 26w, 32w, 38w* **28** *1w, 5w, 8w, 9–11m/9w, 16w, 18w* var. *20w, 26w, 29w, 36w, 38w, 41w* **29** *5w, 21w, 23w* Hope *26w, 41w* **30** *10w, 18w* Hope *30w, 31w, 33–34w, wb* Waterhouse **31** *13–14m/13w* **32** *14w, 34w, 37w, 43w* **33** *34–36w* **34** *1w, 6w, 15w, 18w, 23w*◆*, 29–30w, 36–37w, 40m* **35** *18w, 27–28w, 30w, 34w* Waterhouse *40–42m* **36** *18–19w* **37** *19w, 21w, 23w, 28w, 32w, 34w, 37m* **38** *1w, 13w, 15w, 18w, 29w* **39** *11–12w, 27m, 34w* **40** *31–32w* **41f** *w* **42f** *w* **43f** *w* **44f** *w* **45** *9–10w, 22w, 35w* **46** *25w* **48** *32–34w* **48f** *w* **49** *4w, 12w, 15m, 19w, 23w, 30m, 35w, 39w, 44m* **50** *5w* Hope *7m, 10–11w, 13m/w, 18w, 24w, 28w, 34m, 39w, 43w* **51** *6m, 19–20w, 21w, 24m/w, 28m, 30–31w, 34–36w* **52** *11w, 18w, 21m, 29m, 36w* **53** *14m, 26–28w* **54** *32w, 37w* **55** *5–6w* **56** *41m* **57** *27w, 30w* **58** *30m/w* Hope **59** *11w, 20w* **60** *4w* **211** ⇑*20m* **221** ⇑*19m,* ⇑*14m,* ⇑*6m* **222** *3m* **223** *1m, 6m, 15m, 24m, 27m, 31m, 34m* **224** *16m, 25m, 33m* **225** *4m, 26m, 32m*

vol. 2, 28 *11–14z, 27m* **28f** *w* **37** *wt* Moths

STERNE, Carus (i.e. Ernst KRAUSE) *Werden und Vergehen* Berlin; Gebründer Borntraeger; 1876 [CUL] ℘

STERNE, Carus *Werden und Vergehen* 2nd edn; Berlin; Gebrüder Borntraeger; 1880 [Down]

STEUDEL, Ernst Gottlieb *Nomeclator botanicus* Stuttgart & Tübingen; J.G. Cottae; 1841 [CUL]
sx, sy, wd

NB p.112
Poinsettia Cyanophyllum Hot House Plants
Azalea anaena
Hibiscus (Abutilon) allied to Viscus (Hooker)
Rudgea Rubiaceae dimorphic

part 1, 5b *48m* **95b** *10m, 18m, 20m, 26m, 32m, 37m, 41m, 46m, 48m, 52m, 54m, 58m, 59m, 63m, 65m, 68m, 72m, 77m, 78m, 83m* **96a** *2m, 5m, 12m, 18m, 22m, 25m, 26m, 28m, 31m,*

37m, 47m, 50m, 53m, 58m, 64m, 66m, 72m, 80m **96b** *5m, 7m, 12m, 13m, 15m, 22m, 33m, 37m, 39m, 42m, 47m, 49m, 50m, 53m* **112a** *50m* **118a** *35–37m/35u "hypogaea"* **256** *zt* **450b** *73m, 74m* **451a** *1m, 32m, 33m* **494a** *14–15m/14u "uncinatum"* **494b** *82m* **495b** *43m, 64m* **496a** *3m, 6m, 59m* **496b** *45m* **507a** *29–32m, 34–37m, 45–50m, 53–58m* **507b** *7–12m* **559a** *61m* **601b** *6m* **677b** *67m✎/u "cinereum"* **678a** *35–37m✎/35u "Endressii"* **678b** *10m* **679b** *20m/u "Richardsons", 66m* **681b** *50m/u↔* **766b** *80–84m*
part 2, 51a *74m, 75m* **51b** *8m, 14m, 26m, 63m, 83m* **52a** *4m, 54m* **52b** *26m, 27m, 43m, 62m, 71m, 74m, wb* 14 **94b** *75m* **106a** *30m, 32m, 57m, 60m* **325b** *39m, 63m, 75m* **326a** *75m* **326b** *18m* **386a** *58m* **391b** *wb¢¢* **395a** *64m* **590a** *26m, 45m* **748b** *13m*

STEWART, Dugald *Philosophical essays* 3rd edn; Edinburgh; 1818 [ED, CUL.1900]

⟨probably CD⟩ **415** *⇑10–6m* **416** *⇑12–10m, ⇑2–1x*

STONEHENGE (i.e. John Henry WALSH) *The dog* London; Longman, Green, Reader & Dyer; 1867 [CUL]
br, cs, he, sl, ta, tm, v, y

NB ♦ Reversion in 3 & 5 generations – 173 Reversion
175 Breeding in & in
♦ Shows how soon Bull-dog form is eliminated–
179 & 183 good on crossing Bull-dog & Greyhound
Period of adultness in dogs – 187 – Periods of adultness
188 Breeding in & in; 196
223 form of young animal– cannot be selected
Reversion Close interbreeding Crossing, elimination of character Period of adultness
Q✍ Form of young ♣ Dogs

118 *6–15m/7–9"..."* **173** *18–27m* **174** *1–13m* **175** *13–17m* **177** *1–4m* **179** *7–17m/10u↔* **181** *4w* child, 1st yr **182** *1w* grandchild 2d **183** *1w* grgrchild 3d *2–4m, 5m, 6–8m* **184** *1w* grgrchild **187** *16–19m* **188** *10–14m, 17–20m* **189** *1–5m, 15–22m* **190** *2–4m* **223** *2–5m, 14–16m*

STRASBURGER, Eduard *Sur la formation et la division des cellules* revised edn; Jena; Herman Dabis; 1876 [CUL, I] ℘

STRASBURGER, Eduard *Über Zellbildung und Zelltheilung* 2nd edn; Jena; Hermann Dabis; 1876 [Down]

STRASBURGER, Eduard *Zellbildung und Zelltheilung* 3rd edn; Jena; Gustav Fischer; 1880 [Down, I]

STRAUSS, David Friedrich *Der Alte und der neue Glaube* 2nd edn; Leipzig; G. Hirzel; 1872 [Down]

104 *11m*

STRICKER, Salomon *Handbuch der Lehre von dem Geweben des Menschen und der Thiere* 5 parts; Leipzig; Wilhelm Engelmann; 1868–72 [Down] ℘

STRZELECKI, Paul Edward de *Physical description of New South Wales and Van Diemen's Land* London; Longman, Brown, Green & Longman; 1845 [CUL, I]
f, fo, gd, h, is, mg, no, se, sp, ta, ti

NB Abstract March 57; 143 Van Diemens long an isld for coast elevated 100ft 143 so that animals cannot have passed from one isld to another, recently
56♦
254 Proteaceous leaf Bulinus & Helix
296 Van Diemen Carbonifer series Morris
302 Diprotodon Marsupial. Pachyderma Fossil to 312 (not important)
314 List of Animals & birds common to Australia & Van Diemens Land
347 Sterility of one race of Mankind with another.
352 number of natives Van Diemens Land

143 *23–26m* **254** *2–16m (Darwin, R. Brown, G.B. Sowerby)* **270** *8w* 1 **271** *6w* 2 **272** *1w* 2 *7w* 3 *14w* 4 *21w* 5 **273** *5w* 6 *17w* 7 **274** *5w* 8 **275** *20w* 9 New genus **276** *13w* 9 *25w* 10 **277** *7w* 11 *17w* 12 *25w* 13 **278** *5w* 14 *12w* 15 *25w* one same **279** *7w* 16 *28w* 17 **280** *10w* 18 **281** *6w* 19 **282** *7w* 20 *26w* 21 **283** *18w* 22 **284** *4w* 23 *20w* 24 **285** *5w* 25 *28w* 26 **286** *5w* 27 *23w* 28 **287** *9w* 29 **288** *2w* 30 *28w* 31 **289** *8w* not new *22w* 32 **290** *4w* 33 **291** *10w* or 34 **296** *1–3m* **301** *34–37m* **302** *9–12m* **303** *26–28m* **305** *3–4m, 31–33m, 34–37m* **306** *31–32m/31u "marsupial"* **309** *32–35m* **310** *32–35m* **311** *22–30m* **312** *9–14m* **314** *wt* x means common *23m* **315** *9x, 18x* **316** *1x, 7x, 25x, 29x* **317** *1x, 6x, 8x, 12x, 14x, 16x, 18x, 27x, 30x, 33x* **318** *4x, 15x, 18x, 20x* **319** *9x, 14x/?, 16x, 32x* **320** *10x, 23x, 33x* **321** *3x, 5x, 7x, 12x, 14x, 22x, 28x* **322** *2x, 14x* **323** *8x, 23x, 25x, 27x, 32x* **324** *15x, 20x, 28x* **325** *5x, 8x, 13x, 17x, 19x, 21x, 23x, 25x, 27x, 29x, 31x, 33x* **326** *3x, 5x, 8w* not *16x, 21x, 27x, 30x, 32x, 34x* **327** *2x, 8x, 10x, 13x, 15x, 17x, 20x, 22x, 25x, 29x, 31x* **328**

STRZELECKI
1x, 4x, 10x, 12x, 17x, 20x, 23x 24x, 28x, 30x, 32x, 34x, 36x **329** *1x, 3x, 5x, 7x, 9x, 11x, 13x, 15x, 17x* **347** *1–8m*

STURM, Carl Christoph Gottlieb *Über Raçen der landwirthschaftlichen Hausthiere* Ebberfeld; Büscher; 1825 [CUL]
beh, cc, ch, cs, dg, h, he, hy, in, or, phy, rd, sl, sx, t, ta, tm, ud, v, wd, y

NF This book shows that any laws can be made out, in accordance with authors own observations on such ill defined points as resemblance to parents &c– The only way & that poor is to take indifferent peoples statements & from such statements build facts. Reason for quoting & for authorities
NB p15 to
SB ❐ℜ
16 Rule of ant. part taking after father NQ
82 On weakening of cows maternal instincts Q
85 Q In districts where cattle worked, it is well known young are more easily broken in – so in Pampas Horses) Compulsory instinct.
104 NQ Horns always after Merino Ram: one cross from Horned Bull gave Horns to Hornless Herds, (because a part previously lost, so tendency to return.– (N.Q. in Ch. 9)
107 Attention quicker or slower according as we take male or female of H & cross it with B.
67 drawn back neck in alpine sheep like Alpine kinds
120 Selection

ii *1–9m/w* does not always quote his authorities **5** *4–12w* longer a variety exposed to any condition greater the change & then harder this change to vary **7** *8–15w* Head most important♦ sure race-character amongst intellectual animals **15** *3–6m/wt/1–14w* general forms of heads of domestic races especially differ from each other, even in horses, & even in cows **16** *14–17m/13–26w* Father gives heads, & mother hinder parts is general rule. Some exceptions do not destroy the rule! *23–24m, 26u "Daubenton", 29m/a "Landschaf"/wb* Sheep crossed with Merino ram head & fine wool on anterior part of body take after father – case given in p18 & in p19 with Birds anything can be proved! **17** *1–30w* His laws hold to hybrids as well as Mongrels **18** *7–8m, 13m* **19** *wt* Hofacker○ gives many cases of changes in colour in Foals as they grow *2–18w* Muscovy ♣ drake crossed with common duck follows same law *2u "türkischen", 7–8u "Junge | ähnlich", 10–14m/11–12u↔, 15–16u "Kopfes | von", 25–27w* & crossed geese & crossed pheasant **20** *1–7w* foals from old stallions have old looking heads!! Bosh. not in men = *10u "Im | Bande", 11u "Maulthier", 13u "Maulesel", 27–28m/27u "Alle | haben"/28u "Mutter | dem"* **21** *1–2m, 3u "Kopfes | Glieder", 21–22u±* **22** *2–8w* Size of head varies much in bulls compared with size of body **23** *9–19w* Eyes & ears vary much in races of cows & horses **24** *8–10w* Horns vary in individuals of same race *17–25m, 21–26w* ! Quoted more curled the wool the more the horns *wb* introduce in relation to teeth & pairs **25** *8–12w* The hair on head often characteristic *15–19w* one race of sheep with woolless head another with head covered with wool **26** *wt* X Can convert one race into another most preferably by crossing of the male *1x/w*♦ Can **30** *wt* N.B These enumerations of differences merely show that all parts differ – **31** *1–2m* **32** *wt* Fig. wrong **42** *30–33m/28–33w/wb* No authority for sheep in S. Sea loosing wool **47** *8–12w* Cabbages change forms **48** *wt* White Cabbage seed planted in Naples gave Black-Kohl but generally cauliflower?? *2–13m/8u/w¢ 15–22m/16u "mir"/20w* xa *wb* x (a) Says from own observation clearly made out that the naked huskless barley especially in wet year of 1823 always degenerates into common **49** *1–13m/5w* (a) *wb* One ought not to infer that climate causes these variations, but only that they cease being persistant under new climates **50** *19–20m/?* **53** *19–24m/w* Says Cattle taken to E Indies decrease in size in few generations **54** *26m* **55** *26u "brasilianischen"/26–30m/w* Brazilian (Rio Plata) proverbially best **57** *16m, 24–28m/w* Portuguese cows transported to Brazil give better milk **58** *12–26m/12–21w* quantity & character of milk varies in diff. countries *28–30m/w* milk varies in different years **59** *15m, 16–22w* candle manufacturers prefer Russian tallow **60** *wt* X he attributes this to the effects of climate but Youatt shows it is in breed & can be got by selection *3–9w* Much more tallow in Holland races, than in Tyrolese *9x* **61** *18m 28–29u "dass | hat"/w* of Men what wd Malthus say? **67** *wb* Remarks that true sheep have drawn back neck like all Alpine animals, wh is quite lost in lowland sheep – Mem Levington Sheep – **68** *3m* **74** *3–14m/w* says all animals living in mountains as sheep, goats & pigs are less fruitful than in low countries **79** *14–15m/u "Consuetudo | natura"* **81** *23–29m, wb* instinct of period of propagation has varied in all ruminants **82** *14–25m/w* says cows from long generations habit do not care for their calves being taken away directly here. *27–28w/wb* have lost maternal instinct **83** *1–7m/w* says he has observed great differences in cows himself *19–20u "während | duldet"/9–27w* The Merinos will let about any strange lamb suck them, because Spaniards kill weak lambs & put strong one to them; hence individual Maternal instinct is destroyed. **84** *13–27w* says the acquired instincts of dogs are easily lost, so are natural ones, as burrowing & wildness in Rabbits **85** *18–21m/18–26w* it is well known, in districts where oxen are used for draft they are easier broken in – *27–30m/27u↔, wb* good case of compulsory instinct **99** *28u "Kartoffeln", wb* many races of fruit & Potatoes have risen from crossing! **100** *11–16m/w* Merinos originally a crossed breed **101** *10–13m/w* Father chief, especially in mind *13u "nur | beträgt", 22u "neue Mittelrafe", 23u "Typus | Vaters"* **103** *1–6m/w* Father chief?? *21–24m/21–30w* Hair, horns &c are most easily altered by crossing – other parts more difficult **104** *5–13w* curly hair from alpine bulls transmitted to first cross *16–26m/w/wb* so with Merino rams, even in parts of body which have no hair in the mother: in one case length of tail not increased, but covered with wool **105** *5–10m/w* always has horn of Merino Ram *11–18m/14–21w* A I think this is because lost part; or rudimentary *21–29m/w* Hoof takes after father in Oxen & Horse *wb* (A) In herd of invariably hornless cattle for many generations, one year of war the hornless bulls were lost & horned ones were used, & first year 9 out of 10 calves had horns **106** *15–16u* **107** *3–7m/w* alterations slower according as sexes of different breeds are crossed *6u*✍ *"friessischen Ochsen", 12–16m/*Q✍ **109** *wt* Memory *3–8m, 5–6u "Kunst fertigkeiten", 6–7u "Raphael's, Mozart's, Dante's"* **110** *11m, 29–31u↔/21–31w/wb* as many years as teeth require so many generations for new race!! **111** *18u "dem 6ten", 19u "oft"/w* variation **112** *wt* in crossing head after father & in succeeding generations the change travels down the Back! *4–6m* **113** *1–8m/4–5w* instance of above! *16–19m/17w* A *wb* A Has already shown that attention through father is so much quicker, as this does not depart much from original race **115** *wt/1–8w* A says to produce new race (viz to make a Merino breed come out of country sheep) it is very disadvantageous to commence crossing very unlike breeds, better begin with a half-bred & so go on step by step. A *1–20m* **117** *26u "gemeine Veredlung"/25–28w* selection with crossing *30u "individuelle Veredlung", wb*

what we call selection without crossing **119** *6–10m/w* good milking tendency goes by father: curious – *18–21m/w* instance **120** *15–26m/w* Quote English selection best means least requires great knowledge & a fixed forelook on stocks of cattle *27u "Ductilität"* **121** *10–14m, wb* says particularly necessary to know influence of Father & Mother in this kind of selection – this I doubt

SULLY, James *Sensation and intuition* London; Henry S. King & Co.; 1874 [CUL]
beh, r, t

NB Expressions; 29 to 36 goodish
17 *16–21m/w* What can I have said **29** *7–39m* **30** *38–41m* **34** *24–32m* **36** *14–24m/6–23w* This wd apply only to social animals

SULLY, James *Sensation and intuition* London; Henry S. King & Co.; 1874 [Down, I; 2 copies] ℘

THE SUPERNATURAL in nature London; C. Kegan Paul & Co.; 1878 [Down]

THE SURVIVAL London; Remington & Co.; 1877 [Down, I by publisher]

SWAINSON, William *The cabinet cyclopaedia, natural history: A treatise on the geography and classification of animals* London; Longman, Rees, Brown, Green & Longman; 1835 [CUL, S]
ad, beh, cc, ex, gd, is, mg, oo, no, sp, sy, t, ti, tm, wd

NF1 Read Kirby on Geograph Distribution of Insects
N.B. European Plants on Himalaya agrees with idea of great zone
☞ Swainson has written in the Geographical Dictionary
There is a great deal of nonsense talked about perfection of groups &c as far as I can discover; some families have mingled characters & varied habits, others confined characters & peculiar structure.–
NF2 ✍ Chas Darwin
p.8. Each country is said to have an original breed of own domesticated quadrupeds.–
p12 General aspect of forms from different countries
p.17 No large animals in Madagascar
p.21 waders peculiar to Europe
p.22 Parrots confined to particular Isls –
p.24 soft billed birds best characters taken from–
p.26 Many genera in Europe

49 2 Lions
50 Malacca birds peculiar
55 European birds go to Asia not v versa
58 North Australia like Africa
69 Mexican Ornithology
106 Australi genus in S. Africa
110 Madagascar
115 Australia & 118
NB I see grallatores greatest range among birds
Antelopes in North America
p107 Barn Owl S. Africa
SB □β
8 says neither temp – food, foes &c account for local distribution – good to quote him as an example of ignorance – something must check – See about nightingale in Bechstein.
12 show how climate is given up. What a contrast between Java & Madagascar N. Guinea. New Zealand & N. Caledonia as far as is size of Mammals.
21 Waders greatest ranging Birds
50 Analogy of S. Asia & Africa (Probably much extinction in Tropics series before glacial period)
111 on relation of Mammals of Madagascar & India

3 *34–38m/w* Motacilla – nightingale **7** *19–31m* **8** *7–18m, 35–39m* **12** *1–6m* **17** *wt* New Zealand Caledonia New Guinea contrasted with Sumatra &c &c & England *4–9m/5m/u "absence | Madagascar", 11–16m* **21** *15–29m* **22** *27–35m/32–35m* **24** *22–25m* **26** *11–16m, 21–39m* **27** *1–13m, 30–35m/w* because better known? **29** *7–20m/10–11o* **31** *35o/u "perfectly naturalized"* **35** *zb* **39** *29–30o* **48** *5–6o, 12–13o, 23–38m* **49** *22–39m* **50** *24–30m* **51** *1–10m/w* like Elephants driven down **55** *41–43m* **58** *2–7m, 9–11m/?/w* Brown **69** *28–36m* **72** *8–9o* **81** *8–10o* **87** *20–24o* **92** *7–9o* **103** *35–38o* **104** *wt* Monkeys even in Cape 35°! *1–2w* N. America *5–11m* **105** *30–38m* **106** *21–31m, 38–40m* **107** *31–39m* **110** *31–39m* **111** *2–18m, 31–39m* **114** *29–33m* **115** *1–21m/20–24w* Mem Brown on Birds **116** *1–13m/8–11!/4–8w* Opossums make nests **118** *2–28m* **119** *18–26m, 35–37o* **243** *wt/1–3w* Every word in this page will serve for the Caracara – an aberrant Eagle *1–36m* **245** *wt/1–3w* It would appear that some circles unite many characters & varied adaptations others more confined *4–7m* **357** *29–36m (F. Cuvier)*

SWAINSON, **William** *The cabinet cyclopaedia, natural history: The natural history and classification of birds* 2 vols.; London; Longman, Rees, Orme, Brown, Green & Longman; 1836–37 [CUL]
beh, ch, ds, gd, ig, no, sp, sy, t, tm, v, wd

vol. 1 NB 166 Monkey noise a call note
31 Expressions p.31 ♦ Crests ♦
♦ 29 Head ornate
I do not allude to call notes ♣
167 on singing of Birds to
185 Nests

29 *26–39m, 37u "Guinea-fowl", 38u "have | horns"* **31** *10–11m/11u "danger | anger"* **72** *fig.w* angle too ac little too sharp too coarsely shaded **166** *4–15m, 27–32m (Buffon)* **167** *8–9u "autumnal | robin", 13–14u "exerted | where", 18–25m* **168** *7w* cranes *10–13m, 15–20m,* ⇑*2u "of perchers"/wb* swallow **169** *5–7m, 9–13m* **170** *21–26m/21u "swallow", 30–36m/w* cawing a tone song **174** *35–38m/35u "Insessorial"* **177** *23–30m* **185** *31–37m*

vol. 2 NF 11 Is Falcunculus cristatus a shrike? Vanga a crow?
SB □β
11 Falcunculus. Australian Shrike tears off Bark & hunts for insects; do well to insert in Ch 8 on Transition, when I treat Bird becoming like Woodpecker
112 Vidua, widow Bird of Cape wd suffice for Ch. 6

5 *13–18m* **6** *8–15m/w* This should be considered in the Fissirostrial type **10** *wb* It is like Echidna & Histrix having spines **11** *30–39m/31–33w* Examine this Bird *wb* N.B. XX It is not difficult to see how all types would be repeated. because all spring from one stock & same circumstances. which makes order, would make same number of representative wild forms **14** *4–8w* what difference *6–10m* **15** *1–20m/4–8w* thoroughly unphilosophical **307** *10–15m* **308** *11–15m*

SWAMMERDAM, Jan *The book of nature* London; C.G. Seyffert; 1758 [CUL, pre-B, S Charles Darwin 1827]

title page ⊸ Josiah Wedgwood to Erasmus Darwin, to R.W. Darwin to Charles R. Darwin to William Erasmus Darwin 1858
A present from my ingenious friend Josiah Wedgewood to Erasmus Darwin F.R.S.
✏ ⟨CD⟩ This book I wish to be given to George

part 1, 125b *35–41m* **132a** *3–8m* **217b** *14–22m*

SWANK, James Moore *Statistics of the iron and steel production of the United States* Washington, Government printing office; 1881 [Down]

SWINHOE, Robert *Narrative of the north China campaign of 1860* London; Smith, Elder & Co.; 1861 [Down, I]

SWINHOE, Robert *Notes on the island of Formosa* London; F. Bell; 1863 [CUL, I]
beh, cc, gd, gr, ig, is, sx, t, ta, tm, v

NB Introduction p.29
Ibis p.12; p.47; 57; 75; 86; 103
p.2 to 5 Zoolog Proc
Formosa Ornith Ibis P 44 Female assuming late Plumage of Male; 50♦ Petrocinala; 68 Oriolus do do – but rarely; 131 & 132 Squacco Herons
SB ❑β ✍
Introduct Ibis p.29 general character of Fauna of Formosa– distance from China
p.12 Ibis – grades of differences & variation in Birds of Formosa
p47 example well-worked out in Lanius
57 do in Garrulus
75 Drymoeca – less marked vars
86 Wagtail more complicated vars like British – conditions of life
103 Centropus do.–
Zoolog. Proc.
p.2 to p.5 general characters of mammals, also to slightly differ in characters of colour slight vars, some distinct
Good for Variation – Geograph. Distrib.– and effect of Conditions of life.–

Introduction, 29 *34–56m*
Ornithology of Formosa, 12 *11–25m, 26–28m* **13** *11–13m* **44** ✍ *23–28u±, 27–35m, wb* Ibis Jul 1863 p.22 **47** *1–11m, 13–20m* **50** *11–16m* **57** *17–27m* **68** *23–28m/26u "green | spotted"/29u "This | much"* **75** *16–19m* **86** *5–30m* **103** *2–6m* **131** *10–13w* sexes alike same places *24–32m/27–28u "splashed | very"* **132** *16–20m*
Mammals of Formosa, 2 *1–4m, 44–47m/46u "generally darker"* **3** *5–9m, 14–15m, 17–22m, 27–33m, 43–46m, 48–50m* **4** *1–6m, 10–19m* **5** *29–31m*

SYME, Patrick *Werner's nomenclature of colours* 2nd edn; Edinburgh; 1821 [CUL]
sx, tm, v

NF ♦
Beak of female; ash grey males nearly black
Legs &c exact ● orange – few
●
Soles of feet yellow, skin of beak with very faint ● legs partly ● shape of feathers becomes same – lower mandible & part of upper ● grey

TASSO, Torquato *Gerusalemme liberata* 2 vols; Firenze; 1821 [CUL.1900]

3 *"vi".m, "viii".m* **4** *"x".m* **8** *"xxiii".m* **10** *"xviii".wx* **21** *"lxi".X*

TAYLER, John James *Christianity* London; Williams & Norgate; 1868 [Down]

TAYLOR, John Ellor *Flowers* London; Hardwicke & Bogue; 1878 [Down]

NB O/

TAYLOR, Richard (ed.) *Scientific memoirs* vol. 1; London; 1837 [CUL]
che, mhp, t

NB Nothing October /56/
vii *25m (Ehrenberg)* **224** *6–10m♦/7–8"...", 9–10z, 22–26m, 27–45m* **225** *5–9m, 11–15m, 15–21m, 33–38m/33–34u "the | multiplicity"* **227** *wb* The whole Universe a life, the plant a crystal, a life – i.e. his definition, but what commonly called life, a unity producing a different class of complexity than other unities.– Good idea– to show life only laws like universe **234** *35–42m/37–39?, wb* Is there more unity in zoophytes **236** *15–16u "utterly incapable"/?/9–17m/w* Mem. plants gain habits *25–28m/?* **240** *16–19m/18w* Zoophites
411 *14–38m*

TEALE, Thomas Pridgin *Dangers of health* London; J. & A. Churchill; 1878 [Down]

TEGETMEIER, William Bernhard *The poultry book* 11 parts; London; Orr & Co.; 1856–57 [CUL]
cs, he, v, wd, y

part 1 NB O/
part 2 NB O/
part 3 NB p.47, p.48
47 *26–27m, 27–28m/*Q **48** *10–12m, 10u "the | quill"*
part 4 NB Cuckoo Cochin✍; 53; 56
52 *31–33m/33u "Cuckoo"* **53** *26–28m*
part 5 65; 66; 72 ✍ Correlation of Eggs and plumage; ✏ 76
65 *3–5m, 32–37m* **66** *35–37m/w* like wild **72** *8–10Q, 10–14m, 36–37m* **76** *25–28m/Q*
part 6 NB 86; 87
86 *1–6m, 38–40m* **87** *6–11m, 12–15m*
part 7 NB 89; 95 good Reverses
✍ 2 [Q?] non ♣ sitters producing sitters not so with me
98; 99; 100 spur often on Hens; 93 related Characters of Spanish not shown early

It would be good to cross 2 distinct hen-tailed breeds & see if tails wd not come – Cross 2 breeds of which chicks are not barred & see if not come barred.
89 *7–11m, 36–39m* **90** *11–14m* **93** *1–5m* **95** *17–21m, w* Reverse Q✍ *20–21m/21u "sits | steadiness"* **97** *24–25m/w* Andalusians *25–29m/27u "them | weeks"* **98** *5–7m* **99** *1–3m/*Q, *41m/u "is | sharp", ⇈1→* **100** *1–2m/1u "set | leg", 2u "that | softer", 37–41m/39u "markings | reason"*
part 8 NF Plates of Ptarmigan **NB** 102; 111; ✍ Comb if not clipped fearful vantage ● fighting
101 *⇈9–8m/u↔/w* in same sub-breed **102** *13–15m/w* very different from other breeds *17u "hens | former", 19–20m, 30m* **103** *14–16m/25–27m/w* a relation between Hens & Cocks *⇈11–10m/m/→/wb* I think a Cochin Cuckoo yes p.53 & Dorkins (I think I have seen a Cuckoo Spanish at Anerly *⇈9–5m/w* loss of character **106** *⇈16–10m/w* Boldness **111** *⇈16–15m*
part 9 NB 115 to end; 123; 133; ✍ 123. Sexual selection.
SB ➾
p.123 Pheasant attached to single Hen.
124 Hybrid Pheasant & Fowls
– 133 crossed Hamburgh good motherings.
115 *⇈13–11m* **116** *13–15m, ⇈9–7m* **119** 9–11m, 26–29m **122** *⇈17–13m, ⇈14–13m*✍ **123** *2–5w* It is an ambiguous variation *21–22m, ⇈12–11m/⇈11u "some | favourite"/w* – Selecting Bird ⇈3Q✍ **124** *3–6m, 7–9m, 10–11m, 14u "extraordinary wildness", 14*Q✍, *15u "tails very", 16u "and | was", 17–20m, 19–20u "whilst | pheasant", 19–21m/w* Prepotency Q✍ *21u "entirely black", ⇈14u "colour | dark", ⇈14–4w* Different race of Fowls unduly○ affects hybrid with Pheasant shows Pheasant not preponder in colour Q✍ **125** *⇈8–5m/⇈7–6u "that | nest"/w* Q✍ ag▶ death of embryo *⇈4–3m* **126** *8–12m, 9–13m* **129** *13–14m* **130** *⇈7–4m* **131** *5–7m, ⇈12–10m, ⇈6u "three | varieties"* **133** *⇈7–4m/*Q✍ **135** *5–6m, 6–7*Q✍ **136** *8–11m, 14–15m, ⇈18–14m, ⇈8–7m, ⇈7–4m/⇈7u "Cuckoos", ⇈6–5m, wb* Spangling runs through several breeds
part 10 NB several pages marked
✍ 154. relation of sterility & Hen-tailed Sebright Bantams.
142 *9–12m* **148** *⇈5–2m* **150** *10–13m, ⇈13–10m, ⇈9–4m* **153** *⇈6–1m* **154** *5–9m, 13–15m, 16–18m*✍, *25–28m* **156** *9u "assume | tinge", 11–12m, 18u "two | here", 19–22m,* ✍ *23–26m/24u "for | years"/*Q
part 11 NB ✍ 162 Chicks of silky Fowls Q–
✏ 163 Silkiness not transmitted to offspring
plate "White Aylesbury Ducks".*w* Lemon Beak **158** *18–21m, ⇈6–3m* **159** *18–20m/19u "Spangled Bantams"* **161** *wt*✍ **161** *11–15m/13–15m, ⇈9u "its | hue"* **162** *1–3m, 12–14m, ⇈17–13m* **163** *11–14m* **164** *12u "Some | like", 13u±, ⇈10–5m* **165** *12–18m/*Q **172** *⇈5–3m*

TEGETMEIER, William Bernhard *The poultry book* 15 parts; London; Routledge; 1866-67 [CUL]
beh, br, cs, f, fg, gd, he, hy, in, or, phy, sl, ss, sx, ta, ti, tm, v, wd, y

part 1 NB O/
part 2 NB Marked & referred to old Pages
40 *⇈4m* **41** *⇈3–2m* **42** *19–20m* **46** *1–2m, ⇈13–11m/⇈12u "consume | grass"*
part 3 NB ◆
Cochins produce many○ Cocks
p.49. New
p55 & p.58 Q Brahmas crossed Breeds now true for Cochins & Chiltern greys a large var. of Malays.– Himalayan Rabbits
p72 Q Crossed birds after moulting not true.–
Reversion in individual Birds
49 *14m/u "pectoral", ⇈2–1m* **55** *11–16m* **58** *⇈6–1m* **72** *⇈3–1m* **plate "Silver Polish"**.*w* Black Poland with white white-Poland with black Silver Poland Golden Spangled Poland
part 4 NB strong shells 78
Malays very small comb & wattles 76 new
◆ 79 Interbreeding Q
73 *1–2*Q, *9–11m/*Q **76** *⇈13–10m* **78** *15–17m* **79** *1–6m/w* Hens *→/25–30m, 17–21u±, 23*Q*/a "fact"* says *24a "necessarily"* cause *24c "the | who", 25–26"...", 25c "breeding | in", 28–30"..."* **81** *7–13m*
part 5 NB Copied
◆ 97 Old Cocks getting yellow Hackles Reverse in individuals
p102 Q in ch. 24 Spanish Fowls originally ♣ Mediterranean origin
97 *4–7m, ⇈1–13m/⇈17–16u↔* **102** *8–12m, ⇈10–8m/w* Tender *⇈3–1m/→* **103** *2–5m, ⇈19–18m/⇈18u "immense | face", ⇈5–1m* **105** *⇈6–2m* **106** *⇈3–1m*◆ **107** *14–16m, 16m* **119** *17–20m*
part 6 NB 123 new. form of sexual selection
◆ 128 Black & white Games not breeding Q.
◆✍ 135 Interbreeding Game
✍ spurs extra on Game breeds.
121 *11–12m, ⇈10–8m/⇈8u "early | precocious"* **123** *17–23m/*Q✍, *25–26m* **124** *6u "neck | stray", 8u "whole | and", 9–10u "wings | powerful", 10u "thighs | muscular", 18u "plumage | like", 24u*

"beak | massive", 26u "The spur", 27u "dense | leg", 28–29m **125** *⇑3–1m/⇑2u "are | savage"* **128** *23–25m* **131** *⇑12–9m* **135** *1–6m, ⇑14–12m/*Q✍ **137** *3–6m* **139** *⇑8–4m, ⇑7c/a "an"* An *⇑7"...", ⇑7a "bird"* as ♣ Mr T's poultry works

part 7 NB p.165 Pheasant male; p.155; 157; 165,167 Hybrids

150 *⇑18–12m* **155** *4–7m, 8u "pairs | hens", 8–9w* Hens selected *11u "Golden Mooneys", 14–16m, 19u "hens", ⇑4u "the | small", ⇑1→* **156** *20–22m, 29** **157** *⇑17–14m, ⇑13u "year | feathers", ⇑12–9m* **158** *13–18w* As also produced by crossing probably reversion – *17u "they | pencilled", 17c/a "8"* 2 & 8 *17–20m* **163** *⇑13–7m*✍ **165** *⇑18–1m, ⇑18u "the | single", ⇑17u "affection | common", ⇑13"...*✍, *⇑13–11u↔, ⇑10u "entertain | to", ⇑8u "artifice | anything", ⇑6u "sooner | takes", ⇑2–1u "Extra-ordinary wildness"* **166** *⇑9u "Silver | Hamburgh", ⇑9–8w* Pheasant male *⇑7–5m/⇑6u "close pencilling"* **167** *19–22m, ⇑14-12m, ⇑9–7m*

part 8, 172 *38–40m* **173** *20–25m/w* no too young *30–32m, 35–37m* **175** *2–5m, 7–10m, 22–23m, 23–28m* **181** *26–27m* **184** *18m* **185** *24–26m, 37–41m* **191** *9–12m*

part 9 NB 204 Houdans

209 *33–36m/36u "and | horned", ⇑1→* **210** *1–5m, 26–29m*

part 10, 219 *26–29m, 32–33m, 40–41m, 43u "are non-sitters"* **222** *9–10m/9u "bright blue"* **224** *3–7m/4u "produced | had", 14–17m* **231** *33–40m* **234** *40–42m* **236** *1–4m*

part 11, 248 *1–5m, 11–13m* **250** *19–25m*

part 12 NB 269 Turkey 271 277
Fertility 280, 282 eggs Peacocks Q
285♦

269 *14–23m (Baird)* **271** *20–23m (Baird)* **277** *28–30m, 36–38m* **280** *18–20m* **282** *3–5m* **285** *12u "five | eggs"*

part 13 NB O/

part 14 NB O/

part 15 SB ❑β ✍

The Poultry Book

p.47 & 48 Cochins – O✎ middle-toe very long.– ✏ p.41 & 42 ✍ tail very short – primaries very short.

p.♣46 Cuckoo Cochins p.♣46 Cochins graze much– 57♣ 49. Pectoral muscles little developed

65 Sykes on Fowls imported from Deccan Pigeons from Aegypt breeding at first (as did my African Fowls)

72♣ Malays 81 eggs variable in size & colour *⟨u*✎*⟩* Q♣ 78– chicken Q feathers slowly

p.76♦ 97.✎ Cuckoo Dorking Cock✎, remarkable for having nearly same coloured feathers in both sexes.

86♦ 102. & 107 Spanish– tender – p103. immense comb in both sexes. 87♣ 103. Shape of Skull, affected by Comb

88♦ 89♦ 105 Two strains of Spanish; one from Holland.– Q 106 get white patch at different periods *⟨u*✎*⟩*

♦ 90 p107. About Spanish Fowls not sitting p97. R✎

93 in Spanish Fowls great uncertainty in getting the cordedO white face

♦ 95 p.119 Two non-sitters produce sitting chickens. p.133 do R✎

X✎ 97 Spanish Audubons✏ p121.✏ get secondary male characters very early: crow at 6 weeks Q

99♦ 123 Pedigrees of Game Fowls extend ♣ 100 years

X✎ 100. 124 Spur often present in Hens of Game.– (& savage)

100 Colours differ in cocks of several sub-breeds of Game; more than Hens. X✎ but p.131 Hens (p.102) also differ much

193 131 Cuckoo Game

X✎ 103 131 A Game sub-breed with Cocks & Hens alike

111. 139. Comb a fearful vantage to foe. curious like✏ injury for Beauty sake!

116 Pencilled Hamburghs ♣✏ described by Aldovrandi – X✎ Cocks not pencilled. 119♦ 150 non-sitters

123 Spangled Hamburgh – ✏ p155 2 sub breeds ✍ undergↄ to Pheasants

123♦ 124♦ 165✏ Pheasants selecting particular Hens to pair with

✏ 165 & 167 stronger – like Hyaenas

♦ 124 Young Hybrid Pheasants "Extraordinary wildness" Reversion.– R✎

126 167✏ First crosses of breeds of Fowls & Hybrid Pheasants very large size

129 2 ♣ p.155✏ sub-breeds of Spangled Hamburghs

X✎ 130 Hen-tailed Cocks p154 do strong generally not very fertile; [but Hen-tailed game are said to be so p.102]

135 172✏ Polish Fowls at least 200 years old

136 172✏ Difference in top-knot of Cock & Hen Polish.– Hackles in Cocks correlation comb only rudimentary – wattle & Beard congenitive – Nostril ● 175 not so open; inter-maxillary bones absent.– ♣✏

✏ 173 Blumenbach on the Skull – good

✏ 181 in some breeds wattles, in some beard.–

✏ 175 Correlation of Skull & Plume

✏ do form of comb

p.136 Cuckoo 185✏ Polish: Silver & Golden

TEGETMEIER, POULTRY BOOK 1866
Spangled.
✏ p.188 Sultans – p.191 Ghoudkas–
p.158 Bantams, length of feathers on leg – Breed nearly extinct 159 Spangled Bantams p161. ♣✏ Breeds of Silk fowls p.162 Degenerate in this country: Chickens Q very pretty canary-yellow – 163 224✏ Silkness not transmitted, but colour of skin & bone is transmitted.
165. Ringless Fowls producing tail-feathers – never true to colour.–
over
⟨*over*⟩
172♦ 209 Creve-coeurs. large toothed 2-horned comb.
150♦ 241 Origin of Sebright Bantams – complex cross.
♦✏ 156♦ 248. White Bantams, when mature tend to assume yellow colour & Q✏ this very heredetary – Reversion.– – so with Black-Bantams when 2 or 3 years old. Reversion.– R✏
✏ ♦ New Geol 204 Houdans described
✏
210 Advantages of crossing Fowls
219 Guelders, Comb mainly a rudiment; ✎ Cuckoo Guelder – a sub-breed of polish. no top knot
224 Crossed Silky Fowls
231 good case of Reversion, without a cross
♦ 234 ♣ combs Immense Comb
236 Weight of Poultry & Ducks
250 Bantams with feathers on legs & 2 outer toes longer than wing feather Ch. 25 Correlation of Growth

TEGETMEIER, William Bernhard *Profitable poultry* London; Darton & Co.; 1854 [CUL, I]
beh, cs, sl, v

NB 17; 18; 24; 27; 28; 32; 37; 40
SB ❑β
27 Black Cockins produced from Buff & White – Cochins never fly
36 White lappet very uncertain in Spanish Fowl – (Selection)

17 *28–30m* **18** *13–18m, 20–22m, 29–32m* **19** *28–31m* **20** *16–31m/16–21m/21u "crumbly paste"* **21** *1–2m, 14–18m* **22** *14–19m* **24** *1–11m, 26–32m* **25** *29–33m* **27** *1–4m/1u "small | rudimentary", 31–32m* **28** *11–13m* **29** *5–7m, 17–19m, 27–28m* **30** *12–14m, 16–19m, 28–32m* **31** *2–3m* **32** *27–30m* **33** *5–7m, 8–10m, 14–17m* **34** *24–30m* **35** *4–7m* **36** *5–8m, 12–16m, 19–20u "long | comb"* **37** *10–12m, 30–33m* **39** *2–3m* **40** *wt*✍ golden Hamburgh *2–6m, 17–20m* **41** *6–8m, 12u "Creoles | grays"* **42** *3–6m*

TEGETMEIER, William Bernhard *Pheasants for coverts and aviaries* London; Horace Cox; 1873 [CUL, I]
cs

SB See to; p47♦ scent; 112–114♦ crossing♦; ♣
24 *9–13m* **47** *5–12m* **92** *37–40m* **93** *18–23m, 24–27m* **113** *26–34m* **114** *2–11m*

THOMAS, Cyrus *Acrididae of North America* Washington; Government printing office; 1873 [Down]

NB 25♦
25 *11–14m*
℘

THOMPSON, J. *New, correct and complete ready reckoner* Gainsborough; H. Mozley; 1805 [Down, pre-B]

NB ¢¢

THOMPSON, William *The natural history of Ireland* 3 vols.; London; Reeve, Benham & Reeve; 1849–51 [CUL]
beh, br, cs, ex, gd, hy, ig, is, mg, oo, or, no, pat, sp, sx, t, ta, tm, v, wd, y

SB1 ix; xix; 122; 136; 138; 208; 307; 309; 311; 329; 339; 341; 366; 373; 407 good cases of occasional migrations; Dixon's Poultry first part merely amusing; Index Corvidae Rare birds dull
SB2 ❑β
ix Disease of Birds in England compared to continent & Ireland comp. to England. Odd against migration p22 Sea Eagle preferring Black Fowl– p39 Peregrine Falcons getting a mate when one killed – Eyries well known – Ch. 5
xix on increase of Missel Thrush Ch 5 (p.122)
136 Q Thrush odd variations in place of nest & materials of
307 Carrion crow races in Ireland 208 different variety of Tomtits in Ireland & England
309 Cross with Hooded
330 Q On Magpie changing place of nest from persecution – tame in Norway Q
366 On American Cuckoo in Ireland–
373 Kingfisher American do 407 Swallow & Bittern
⟨*over*⟩
⚭ viz by leading the Bird to be constant in one or the other Method.–
Ducks

ix *16–23m* **xix** *17–27m* **22** *14–19m (Edmonston)* **39** *13–19m*

℘
122 *1–5m* **136** *18–20m, 25–27m* **138** *1–4m* **208** *1–6m* **209** *12–15m (Macgillivray, Jardine)* **307** *17–18m* **309** *27–30m* **311** *3–5m* **329** *27u "reward", 29–32m/31u "persecution", 36m* **330** *1–8m (Hewitson)/1u "collection|notice", 28–33m (Selby)* **339** *28–30m* **340** *23–27m (Jardine)* **341** *1–3m* **366** *5–14m (Temminck)* **373** *16–20m (Thompson)* **407** *20–24m (Yarrell)* **434a** *37–38c/w∉*

vol. 2 SB1 ❐ℜ
p12; p19; 27; 42,4; 47,9; 60; 65; 69; 70; 85,8; 98; 103; 122; 133; 146; 164; 172; 228; 247; 256; 272; p314; p328
SB2 ❑β
11 In Islay half Rock Doves chequered
15 Flight of Carrier Pigeon
49 Cases of grouse breeding in confinement
61 Decrease of Partridges, even to local extinctions, cause very obscure 314 Rails at same time
65 Q Different Habits of Partridge of Scotland & Ireland in rising quietly or scream
69 Q increase of Quails & of those staying to breed 70 do Q
122 NQ our shore birds know Equestrian less dangerous than footman 133 Q Heron not afraid of Train
146 Q Herons breeding on the ground
172 Q American Herons in Ireland at time of Migration in America, which was case with Cuckoo
247 Q Breeding of Woodcocks in Ireland–
256 Q Case inexplicable Probably would not cross 254 thought to be lighter natural colour Q
272 Crested Snipes var. several shot.
328 Q Waterhen not covering eggs in a safe Place.
➾ 327 Waterhens fighting violently for females

11 *17u "in Islay"/16–20m/w*♦ Ireland *32–35m (Andrews), 36u "Col. macularia"* **12** *5–9m (Blyth)* **15** *1–5m* **19** *16–19m* **25** *29–37m* **27** *25–33m* **42** *9–11m (G. White)* **44** *21–23m (Sabine, Eyton)* **47** *17–20m, 28m* **49** *12–16m* **60** *4–6m, 8–11m* **61** *2–3u↔, 10–15m* **65** *15–19m/19u "more|of", 31–35m* **69** *1–7m* **70** *5–8m* **85** *2–7m* **88** *wt* singular so small a habit *1–2m, 15–21m/17–19w* different genus **98** *32–35m (Selby)* **103** *11–14m (Yarrell), 13–14u "ringed|feathers", 14–18*Q *16–18m/16u "several|ringed"* **122** *14–15m* **133** *31–35m/w* game **146** *30–35m (Jardine)* **147** *8–10m* **164** *11–12m, 16–18m (Selby)* **172** *27–33m (Temminck, Keyserling, Blasius, Schlegel)* **173** *1–2m* **228** *5–8m* **229** *21–23m* **247** *2–6m (Thompson)* **254** *10–16m* **256** *19–27m (Selby)* **257** *1–4m* **272** *9–12m, 30m* **314** *9–16m* **327** *28–33m* **328** *13–22m*

vol. 3 SB1 p17; p31; 39; p.44; 63; 68; 70; 102; 110; 323; 441; 457,8; 461,2,5; I have read only 1st vol. of Yarrell
SB2 ❑β
31 Origin of Domestic goose – variable (good) p.44 Domestication of Grey Lag: or Parents
63 Q Migratory instinct wearing off in 12 years in wounded geese
102 Division of flocks of Wigeons &c into distinct flocks (Ch. 6)
441 Extension of frequency of Starling of late years, after loss.
457 Hybrid Blackbird & Thrush (intermediate young)
458 Various Hybrid Swans to 462
465 Ages of Birds Ch. 5
♦ 39 & 70 Hybrids Ducks & Geese

17 *1–5m, 33–35m* **31** *8–16m/11–12*Q✍ **39** *1–7m (Yarrell)* **44** *26–28m* **63** *20–26m* **68** *1–5m (St John)* **70** *31–34m* **102** *9–13m, 18–28m/23–27m* **110** *12–16m* **323** *31–33m, 35–36m* **441** *1–4m* **456** *36–37m* **457** *6–8m, 30m, 30–37m* **458** *1m, 13–15m, 25–26m* **460** *26–27m* **461** *4–15m, 22–27m (Yarrell), 29–32m (Selys-Longchamps)* **462** *6–10m (Westwood, S. Moreton)* **465** *33–35m* **467** *12–14m, 16–17m, 19–21m, 24–25m, 27–28m, 37u "fifty-one years"*

THOMSON, David *Handy book of the flower-garden* 2nd edn; London; William Blackwood & Sons; 1871 [Down]

THORELL, Tamerlan *Études scorpiologiques* Milan; J. Bernardoni; 1877 [Down, I] ℘

THORELL, Tamerlan *On European spiders* Upsala; Ed. Berling; 1869–70 [CUL, I]
ad, af, sp, sx, sy

NB a generalised group of spiders with radiating affinities & small genera, very distinct – p41
135 Blind Spiders in caves
♦ 205 Sexes

41 *2–9m* **135** *13–15m (Keiserling)* **205** *16–21m*

THORELL, Tamerlan *Remarks on synonyms of European spiders* Upsala; J. Lundström; 1870–73 [Down, I] ℘

THORNTON, Robert John *A new illustration of the sexual system of Linnaeus* vol. 1 [Down]

THOUGHTS on the mental functions Edinburgh; Oliver & Boyd; n.d. [Down, I]
beh

NB 115 to end
On Expressions
116 recognises Expressions instinctively
O/

iv *6–7m, 10u, wb ⟨not CD⟩* **v** *8m, 9m, wb ⟨not CD⟩* **vi** *20m, 29m* **vii** *9m, 17m, 28m, 31m, 33m, 49m*
℘
116 *23–35m*

TIEGHEM, Philippe Van *Traité de botanique* 4 fasc.; Paris; F. Savy; n.d. [CUL, S]
che, ct, fg, phy, tm

fasc. 1 NB p61,2 Bloom; p155; –85 Fluids for absorbing Light; 91 Constituents; 96; 98; 122 Frank Bicarbonate; 138 read to
60 *fig.m* **61** *11–22m* **62** *1–5m* **86** *1–8z* **91** *24–30m* **96** *23–29m, 40–47m* **98** *40–46m* **99** *16–23m, 48–51m (Sachs)* **103** *23–25m, 26–28m, 40m* **123** *35–48m (Sachs, Guillemin), 41–44m/43u "cupro-ammonicale"* **126** *14–17m* **138** *3m* **147** *2m* **155** *1–5m, 7–8m, 42m (Sachs)*

fasc. 2 NB 202 & 208 & 209 Frank. Loss of weight of grains; 209 Bears on my experiments with drops of water; 225 Root-Hairs.–; 248 Effect on Haricot crest of Ammonia in humid air; 255 Hairs
202 *16–23m, 38–40m* **203** *5m, 40–46m/46u "Barthélemy|Dispacées"* **208** *6–7m, 8–30m, 39–46m* **209** *4–12m, 34–36m, 38–43m* **225** *1–4m/3u "Rapa", 41–43m* **248** *31–34m* **253** *⇑2–1m* **255** *20–26m* **309** *⇑15–12m* **315** *9–11m* **318** *15–19m*

fasc. 3 NB 474; 480 Protoplasm
341 *1–4z* **343** *34–42m* **355** *18–27m* **359** *17–20m* **432** *7–12m* **437** *35–37m* **450** *20–22m* **453** *5–9m, 15–18m* **456** *31–35m* **474** *15–18m, 37m* **480** *39–45m*

fasc. 4, 490 *4–5m/5u "leucite"/w* or Aleuron!
492 *11–19m, 28u "condense|protoplasma", 43–46m* **493** *8–14m* **494** *9–12m* **498** *fig A.m, fig B.m, 18–19u "partagent|protoplasma"* **500** *40–45m* **505** *20–21m/21u "latex|Euphorbia"* **524** *35–37m/35–36u "paraissent|réserve"* **526** *27–29m* **528** *41–44m* **529** *29–34m* **532** *18–22m* **574** *34–46m* **596** *5–10m, 13–18m* **598** *28–32m, 41–45m* **622** *1–6m* **624** *7–10m, 19–25m/19–20u*↔
627 *8–12m*

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TIMIRIAZEFF, Clement *An essay on the theory of Darwin* St Petersburg; 1865 [CUL, I] *[in Russian]*

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TRÉMAUX, Pierre *Origine et transformations de l'homme et des autres êtres* Paris; L. Hachette; 1865 [Down]

TRÉMAUX, Pierre *Origine et transformation de l'homme et des autres êtres* part 1; Paris, L. Hachette; 1865 [CUL]

NB O/

TREUB, Melchior *Notes sur l'embryogénie de quelques orchidées* Amsterdam; Johannes Müller; 1879 [Down, I] ℘

TRIMEN, Henry and THISELTON-DYER, William Turner *Flora of Middlesex* London; Robert Hardwicke; 1869 [Down]
ex, gd, no

NB 345 large number of rarest plants, compared with common in Middlesex
345 *15–23m*
℘

TSCHUDI, Friedrich von *Sketches of nature in the Alps* London; Longman, Brown, Green & Longman; 1856 [CUL]
beh, cc, gd, mhp, oo, ta, v, wd, y

NB1 p16◆
NB2 p16
SB1 p.18; p.89; p.151; p.152; p.160; 170; 178; 236
SB2 □β
16 3 weeks between blossoming of highest & lowest Cherry-tree
89 case of Fox carried by Eagle & escaped alive Goat 90 children
151 3 vars of Bears – Black feeds more on vegetable. 152 Brown attacks Goats
160 Cattle in Spring know the Bell for turning out for Summer Q
178 Wild sheep in Alps – Bergamesque peculiar Breed N.Q.
236 Ibex or Steinbock very different on Alps & Pyrenees
96 Chamois common to Pyrenees, Caucasus, Carpathian

16 *3–7m* **89** *16–28m, 35–38m* **90** *27–36m* **91** *3–6m* **151** *20–23m, 26–27m* **152** *8–12m/9u "while|brown"* **160** *31–37m/33–34Q* **170** *22–26m* **178** *5–9m, 29u "Bergamesque"* **179** *1–9m* **236** *23–27m*

TUCKER, Abraham *The light of nature pursued* 4 vols; London; 1831 [CUL.1900]

vol. 2, 269 ⇑*14a "implying"* no

TUKE, Daniel Hack *Illustrations of the influence of the mind upon the body in health and disease* London; 1872 [CUL.1900]
beh, em, phy, t

SB All on Expression, except p.282 on imagination of Mother
remarks sensation via the epigastric region from many emotions long ago observed.
p.29 30 75 88 98 135 136 141 154 159 223 244 261 263 269 271 273
282 – Effect of imagination of mother on foetus
340 345

29 *6–7m/w* He experimented on himself *8–10m*/Q **30** *3–5m/4u "sensory ganglia", 11–16m* **75** *4–5m* **88** ⇕*w* I err when I speak of retching from Habit or resulting tone – imagination is cause. **89** *15–22m* **98** ⇑*5–1m* **135** *3–7m,* ⇑*12–6m* **136** ⇑*19–16m,* ⇑*12u "burning shame",* ⇑*9–7m* **141** *8–18m* **154** ⇑*10–3m* **159** *16u "Pride", 18u "elevation | head", 17–20m, wb* Does a man making himself tall – account for position of Head – He is ready for action – **223** *5–12m* **244** ⇑*4–1m* **261** *2–12m/?* **262** ⇑*18–9m,* ⇑*8–1m* **263** *2–6m, 13–17m* **269** *8–18m* **271** ⇑*19–16m,* ⇑*15u*↔ **273** ⇑*12–9m* **282** ⇑*16–3m* **340** *18–24m/w* shows how different emotion is from will – like reflex action **345** ⇑*14–10m* **347** *17–23m,* ⇑*14–10m,* ⇑*4–2m* **350** *5–12m*

TURTON, William *British fauna* vol. 1; Swansea; J. Evans; 1807 [CUL, pre-B, S Charles Darwin 1826]
sh, tm

87 ⇑*4w*∉✍ **118** ⇑*10–9w*✍ B> **129** *16w*✍ Horse Luck **136** *4m* **138** *32m* **140** *39m* **141** *32m* **142** *47m* **143** *31m, 36–45m* **144** *5–9m* **145** *47m* **146** *24m, 31m* **147** *55m* **148** *13m* **149** *27m* **150** *4m* **154** *3m, 27m, 40m* **156** *2m* **157** *21m* **159** *1m* **161** *3m, 16m, 39m* **162** *9m, 32m, 51m* **163** *7m, 26m* **165** *15m* **167** *36m* **171** *37m, 52m* **173** *33m* **174** *17m* **177** *2m* **178** *5m, 40m* **179** *41m* **184** ✍ *30m/w* Odostomia *32w* 1 *41w* 2 *46w* 3 *53w* 4 *wb* * Shell spiral produced, mouth contracted subangular generally distinct from, in body short & furnished with teeth **185** ✍ *7w* 5 *22w* Sym: *30w* 9 *39w* do **186** ✍ *8w* 6 *16w* 7 *23m*✏*/w* 8 *30w* 9 *39w* 10 *46w* 11 **187** ✍ *1m/w* * Planorbis *22m*✏*/w* 1* *29m*✏*/w* 2 *36w* 3 *45m*✏*/w* 4 *52w* 5 *wb* Shell simple, spiral, depressed, spines lateral mouth oblique **188** ✍ *3w* 6 *10w* 7 *16w* 8 **191** *18w*✍ Sym: *26m, 42m* **192** ✍ *4w* Sym: *11w* do *17w* do *24w* do *36w* Sym *43w* do *50w* do **193** ✍ *1w* do *8w* Symnaea *33m/w* Symnaea *34w* 1* *41w* 2 *47w* 3 *wb* * Shell ornate conical mouth entire longitudinally oblong the rt lip joined to the left at the base & folding back on the pillar **194** ✍ *1w* 4 *7w* 5 *15w* 6 *21m/w* 7 *28w* 8 *41w* 10 **195** ✍ *1w* 11 **196** *6m, 21m, 40m* **197** *1m, 35m, 42m* **198** *6m* **201** *4m, 50m* **207** ⇑*11w*∉ **208** *22m, 24w* Fecal orifices turned one way *29m* **209** *23m, 28m, 52m* **210** *12m* **211** *39m* **212** ⇑*29–28m,* ⇑*23–22m,* ⇑*18–17m,* ⇑*13–12m,* ⇑*7–6m* **213** *36m, 52m* **214** *11m* **215** *26m, 33m, 38m, 43m, 45m* **216** *15m, 31m/w* of Lamarck *37m, 41m* **217** *14m, 30w* Chelata of Lamarck

TUTTLE, Hudson *The origin and antiquity of physical man* Boston; W. White & Co.; 1866 [CUL]
h, no, v

NB 35 Number of races of man made by various Authors
35 *7–16m (Buffon, Kant, Hunter, Virey, Blumenbach, Desmoulins, Bory de St Vincent, Morton, Pickering, Burke, Jacquinot), 7u, 9u, 10u, 12u, 13u, 14u, 15u ⟨numbers⟩*

TWINING, Thomas *Science for the people: a memorandum* London; C. Goodman; 1870 [Down]

TYLOR, Edward Burnett *Anthropology* London; Macmillan & Co.; 1881[Down]

TYLOR, Edward Burnett *Primitive culture* 2 vols.; London; John Murray; 1871 [CUL, I from the author with regrets that chap. II was in print before the *Descent of man* was published – Apr. 28]
beh, t, tm

vol. 1 NB Expression
p.150 153 voice tones of; 167 do; 169 pleasure only in air Greenlanders turn up nose in contempt or horror; 27
16 *15–21m, 28–31m* **150** *29u "accompanied"/w* (a) *wb* I shd say the sounds cause the form of face **151** *6–9m* **153** *21–34m* **166** *21–30m/28u "whine of"* **167** *24–37m* **169** *15–19m*

TYLOR, Edward Burnett *Researches into the early history of mankind* London; John Murray; 1865 [CUL]
beh

NB Expression
41 opposition in signs p38 – Opposition p51

TYLOR, MANKIND 1ST EDN
& 53 – Gestures Kissing rubbing noses &c
62◆; 54 foreigners talk by gesture
Nodding do gestures
6 *15–18m* **35** *21–25m* **38** *4–18m* **41** *26–30m* **45** *12–17m* **51** *18–27m* **52** *26–31m* **53** *2–8m* **54** *3–21m* **62** *1–4m*

TYLOR, Edward Burnett *Researches into the early history of mankind* 2nd edn; London; John Murray; 1870 [CUL]
beh, h, t

NB1 p45 snapping fingers; p52
Expression; 38; 41; 44 Book; 47; 48; 52; 69
p272 Excellent on Progress with Mankind – & similarly of mind – Referred
NB2 ●
38 *5–9m, 14–22m* **41** *23–35m* **44** *29–31m, 38m* **45** *15–17m, 16–25["..."], 24–28m, 34u "smelling"* **47** *10–15m* **48** *20–23m, 33–34m* **51** *23–29m/23u "pleasure | greeting"/24u "rubbing | other's"/29u "pattings | Fuegians"* **52** *16–21m* **53** *13–15m, 19–22m/19u "back with"* **69** *1–5m/2u "with fingers", 36m (Lieber)* **275** *31–32m (G.J. French)* **276** *16–23m* **372** *3–38m, 19–20z* **373** *1–20m*

TYNDALL, John *Address delivered before the British Association assembled at Belfast, with additions* London; Longmans, Green & Co.; 1874 [Down]

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cc, cs, dic, f, fg, hy, ig, mhp, phy, sp, sx, t, tm, v, wd

NB1 Not abstracted nor is Lecoq
NB2 160 Williams vessels of Cruciferae
SB Vol I ✏
Everything without red cross is about cross-fecundation
p4 D; 17 – wind D; ◆ Look over Marks; 21.D; 24.D
◆ to 58 (from now I shall skip largely)
✎ All used about Crossing
74D.
143–151 Fumaria D
156 Cruciferae
Law of Variation 159 X✎ 160 D 163 200 D
Dimorphism 308 X✎ Violets
do – 316 X✎ Reseda
x 322 X✎ Drosophyllum allied to Drosera
D 329 Polygala D 388; D 347; D 350; D 355; D 364
Sagina 377 X✎ dimorphic?
D 383
Used ◆ 400,403 Linum
407 Malva D
◆✏ 408 Do
493 Acer D
518 521 Pelargonium D
523 528 D
542 X✎ Noli me tangere Dimorph
Dimorph
544 X✎ Oxalis
563 – Dictamnus D
572 587
✎ very poor Book
⟨*over*⟩ 24D
⟨*D indicates "dimorphism"*⟩

vi *25–28m (Cassini)* **4** *17–21m* **8** *21–37m/w* C. Calycina **10** *23–27!/25–28m* **11** *1–6m* **17** *33–36m* **20** *30–37w* opening of anthers *31–40m*

(Sprengel) **21** *13–16m/15u "et|pied"* **23** *26–30m/28u "première|mâle" (Jussieu)* **24** *24–28m* **33** *20–25m* **36** *1–3m (De Candolle, A.P.), 39–41m* **44** *21–26m* **58** *27–31m* **74** *10–16m* **112** *20–21m* **117** *5–6m* **143** *7–13m* **144** *22–25m* **150** *13–18m (Soyer Willemet)* **151** *8–16m, 36u "Capnoïdes"* **154** *20–24m* **156** *26–31m* **159** *11–26m/16u "Cochlearia|alpina"/17w* good *20–21w* Law of Variation **160** *1–6m (De Candolle, A.P.)* **161** *1–4m* **163** *35–40m* **200** *15–31m (Gaudin)* **308** *12–15m, 19–21m* **309** *8–15m, 26–28m/26u "de|dans"* **316** *15–27m* **322** *22–26m* **323** *27–32m* **324** *8–10m* **325** *3–6m* **329** *13–15m, 16–20m, 21–25m* **347** *3–9m* **350** *3–10m* **355** *26–30m* **364** *25–30m* **377** *13–16m (Gaudin)/14u "souvent apétale"/w* dimorphic **385** *1–4m* **400** *3–8m/4u "Austriaticum"* **401** *21–25m/22m/m/24u "c'est|les"* **403** *16–18m/18u "dix carpelles"* **404** *19–20m* **407** *11–22m* **408** *18–23w* Fermond *22–27m* **493** *23–26m, 29–33m (Linnaeus)* **518** *37–39m* **521** *18–20m, 30–32m* **523** *37–41m, wb* I have seen this differ in Greenhouse vars **525** *16–21m/16–27w* strange notion but shows what a relation there is in position of anther & nectary **528** *3–8m* **542** *30–38m* **543** *21–24m/??* **544** *8–15m* **546** *10–12m* **547** *21–23m* **549** *6–13m* **555** *28–29m* **559** *37–39m* **560** *1–8m* **563** *7–14m* **572** *19–25m* **578** *16–21m*

vol. 2 NB p371 Lythrum
SB ❑β ⇨
Vol 2 Vaucher
21 & 22 Rhamnus – dimorphic or polygamous
42 Leguminosae Dichogamy &c
64 Spartium Dic.
82 Ononis dimorphic
90 Nat. Hybrids
188 Nectar-glands Vicia – Dimorphic Vicia
194 Lathyrus. Dimorphic & good gradation
204 Phaseolus – Dic.
213 Lupinus 2 sorts of anthers
225 Arachis dimorphic
225–299 Dioicous Legum. Dic
327 330 333 Epilobium &c Dic
339 allied genus D. Moth caught by proboscis
370 Lythrum Dimorphic
535 Saxifraga Dic.
558 563 565 to 571 Umbellifera Dic
610 611 624 627 Flowers of Ray & centre in Umbellifera. Law of Relations; in relation to Daucus – central flowers at 613, 614
644 Adoxa central flower, form from position
682, 693 Crucianella. Dic.
702 Galium sexes separate
732 Scabiosa dimorphic

11 *18–28m, 21u "dioiques", 33–36m, 33u "femelles"* **21** *13u "dioïques|avortement", 14u "hermaphrodites", 23–24m* **22** *8–10m* **42** *41m/w* Legumin **65** *19–22m (Koch)* **82** *28–33m* **90** *5–12m* **106** *19–29m/28u "filets|neufs"* **110** *31–35m/32u "renflent|ferment"* **111** *1u "Globosum", 2–3u "les|les"* **188** *10–18m, 31–37m* **189** *7–11m* **194** *7–11m (De Candolle, A.P.)* **204** *15–19m* **205** *39–41m* **213** *10–15m, 39–41m* **224** *34–36m/?/35u "fleurs infertiles"* **225** *15–22m, 36m* **226** *5–8m* **227** *34–38m (De Candolle, A.P.), 37–41m/39u "vers|arbre"* **229** *2–4m* **231** *20–21m* **327** *21–22m (Koch), 25–30m* **330** *13–17m, 20–23m, 28–34m, 35–39m* **331** *35–38m/37u "ouvrent|soir"* **333** *16–20m* **339** *8–13m, 25–27m* **368** *34w* Read **369** *30–32m/31u "où|et"* **370** *30–38m, 34–40m* **371** *1–12m, 4–12m, 22–24m* **381** *15w* Read **535** *13–21m* **558** *8–16m* **563** *9–21m* **564** *4–7m* **565** *6–9m, 24–28m, 34z* **566** *34–37m/35u "la|sessile"* **568** *8–11m* **571** *25–29m* **610** *13–15m* **611** *6–10m (De Candolle, A.P.)* **613** *22–26m/23u "et|rouge"* **614** *13u "ombellule|ordinairement"/w* see p.611 **624** *16–19m* **627** *9–13m, 14–17m, 18–22m/18–19u*✍ *"la|femelle", 33–39m/34u "femelle centrale"* **630** *38–40m* **636** *33–38m* **644** *25–33m* **682** *20–24m, wt* Rubiaceae **693** *7–12m* **702** *31–40m* **703** *41m* **705** *10–11m* **732** *30–36m, 37–41m*

℘

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300 Compositae. Dichogamy
307 Lobelia fertilization a dioicous form D
309 Goodenia References good D
387 Asclepius does not believe is D.
396 Apocynum D.
399 Vinca D
402 Menyantes Dimorphic
413 Dic.
454 Dimorphic
461 Echium dimorphic
461 Pulmonaria do
466 Myosotis palustrus do
518 Digitalis Dic
576 Mentha dioicous
578 Lycopus do
584 Salvia manner of fert (subsid) Dic.
596 Origanum 599 Thymus 603 Satureya
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723 Hottonia dimorphic 724♦ Lysimachia♦
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☞ In former Volume about Lupins with 2 coloured Stamens?

3 *3–4w* Not read to p.299 **300** *12–16m, 34–38m* **301** *4–7m, 9–13m* **307** *3–8m, 27–31!!* **309** *5–7m, 28–32m* **387** *22–27m* **399** *6–8m, 13–15!!/m, 30–33m* **402** *6–11m* **413** *27–32m* **461** *21–*

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22m, 23–28m **462** *30–31m/27–31w* mentioned by Gray **466** *1–4m* **489** *29w* Read **490** *9–11m* **518** *36–39m* **596** *15–19m* **599** *7u "Thym commun"/6–13w* not our garden plant see Steud *18–22m, 24u "sous | couchées", 33u "fleurs | dioïques"* **600** *15–17m, 19–20u "le | avorté", 21–31m/26u "fleurs | rose"* **601** *28–34m* **603** *25–28m* **611** *12–17m* **687** *24–32m* **718** *40–41m* **719** *1–3m* **723** *10–17m* **724** *4–6m* **738** *13–16!/m* **741** *16–21m (Koch)*

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✏ Vol 4
35 Atriplex
complex sexual case gradation
521◆
very imperfectly skimmed, but as much as it deserves
521, 522 on relation of fertilization to position of nectar Dichogamy

35 *12–27m* **434** *15–17m* **521** *2–11m, 15–18m* **522** *30–34m*

VEITH, Johann E. *Die Naturgeschichte der nutzbaren Haussäugethiere* Wien; W. Braumüller; 1856 [CUL]
cs, dg, gd, geo, or, sl, sp, tm, v, wd

NF Veith
title page *wt* Reith◆ Veith **11** *29–36m/31w* (a) *wb* (a) races produced by selection deteriorate when neglected **15** *24–25m/u "weil | theilt"* **24** *24–29m/w* wild horses of central Asia *28u "ohngefähr | gewöhnlichen"/w* small *33u "Ihre | kraus"* **25** *1u "lohbraun", 2u "isabellgelb | mäusegrau", 9u "weissliche", 10u "behaarte | Pamer", 12u "Kumurah | Bergpferd", 13u "das | Sardiniens", 14–16m/w* doubtful whether really wild *17m, 27u "dunkelbrauner | silbergrauer"* **29** *wt* How little we can trust geological evidence shown by the 2 Americas *1u "werden | Hauptstämme", 11u "dunkelbraune | Pferd", 3–17m/w* I daresay from Smith *20–25w* Remarks cannot be traced **31** *11–13m/12u "lange | Mähnen"* **33** *wt* I remember lately seeing that English horses had beaten Aegyptian *10u "Sie | Stammältern"* **34** *12u "noch | gemeine"/w* Dray Horses *20–21w* India Pony still different *22–25w* But new Forest Shetland & Welsh Ponys have different appearance *26–28m/w* English Pony **35** *20u "Neapolitaner", 21u "schweren | Kopf", 22u "Höhe gerichteten", 27m, 33u "sardinischen | klein"* **36** *7–15w* nothing particular **37** *13u "abstehend | hängend"/12–19w* Great heavy horses **38** *16–22w* Germany nothing particular– *25w* Northern horses tow.– **39** *4u "russische", 7u "lange Mähnen", 8u/wτ, 11–14w* These crossed by Eastern Horse *15u "liefländischen", 21u "Ukraine", 25u "domische Kosakenpferd", 26u "Ganaschen"/w* lower jaw *31u "polnische"/w* very distinct *35u/wbτ* **40** *7u "Bachmatten | Podolien", 16–17m/16u "sehr | haut"* **41** *6u "edle ungarische", 28u↔, 34–35m/34a "Paarung"/wb* i.e. Neapolitan-Spanish **42** *11m/u↔, 12u "in | Slavonien", 16u "böhmischen Pferde", 18u "fleischigen | Augen", 19–20u↔, 27u "Steiermarks", 31u "Salzburgs", 33u/wτ* **44** *10–11m/10–14w* never have white spot on forehead **48** *32–33m/u↔* **52** *30–32m* **55** *13–15m, 18u "Die | raçe", 19u "spitzigem Kopfe", 21u "hohen Beinen", 32u "Das | Würzthaler"* **56** *1–3m/1u "das | Vieh"/w* 3 *30–35m/33w* 6 **57** *3u "England"/3–5w* England not counted *20m, 26u "Holländer", 33u "friesischer"* **58** *3u "Tütische", 8c≠, 10–11w* Short Horn *17u "Alderney", 18u "aus | stammend", 20u "fette Milch", 25u "grosse | scheckige", 30–31u "Hintertheil | Schwein-wurzel"* **59** *wt* could these all arise from few crosses? *1u "Simmenthaler | Saanervieh", 5u "Tiroler", 18u "eine | Maul", 19u "Ohren", 22u "Schweizer"* **60** *1u "Vorarlberger", 7–10w* sub-vars *17–27m/22–25w* sub-vars *29m/29–35w* So above does not include crossed races in his opinion.– **64** *26–27u "Alpenketten | Nordasien", 27–28u↔, 33–34u "Früher | heimisch"/?* **65** *1u "Sardinien | getroffen", 2u "jung zähmbar", 4u "Gebirge | Nordafrika", 6–7u "im Armenien"* **67** *10–12m* **68** *31m/w* Felt *33u "gemeine Landschaf"* **69** *5–7m, 14u "Lüneburger | Niederungen", 16–19m/16w* 3 *25u "ungehörnt | hohen", 30–33m* **70** *5u♠, 11u♠, 12u "abstammend", 34–35m* **71** *22–24m* **72** *5m, 11–12m, 31u "hängenden Ohren"* **73** *3–4m* **78** *9–10u "hat | Zitzen", 22u/wτ* **80** *21u "grosse | kleine"* **81** *2–4m, 9u♠, 10u "konstant", 11–12u "Das | ähnlichkeit", 18u "durch Kreuzung", 21–22u "China | vor", 27u↔, 31u "Russland"* **85** *25–27m, 27–28u↔* **86** *5–7m, 19u♠/w* setter *25u "selten Haare"/w* spaniel *26u±, 32w* Newfoundland **87** *1–2!/2u "kegelförmiger | Ohren", 4–5w* Greyhound *14–15w* Cattle Dog *22–23w* short snout hanging ears & jaws *25w* Terriers *28w* Pointer **88** *5–6w* Danish Dog *14–15w* Pug *17w* Bull-dog *27w* Mastiff *32–33w* St. Bernard **91** *10–12m/11u "maniculata | Rüppel", 19–21m/19w* Tortoise shell

VERITY, Robert *Changes produced in the nervous system by civilization* London; S. Highly; 1839 [Down]

33 *21–25m* **34** *1–3m* **134** *3–12m*

VERLOT, Jean-Baptiste *Sur la production et la fixation des variétés dans les plantes d'ornement* Paris; J.B. Baillière; 1865 [CUL, I, FD]
cs, dic, f, fg, gd, he, hy, in, mhp, mn, or, phy, sl, sp, spo, sx, t, ta, tm, v

NB 4 & 5 Sports; Hybrids; 14 Cytisus adami; 22; 28; 31; 46 Hybrids; 54; 56 Colour of flowers; 59; 63 panachure; 61; 71,2; 80 & 88; 84 very good; 90; 92
SB1 ☐β ✍ ⟨*not CD but dictated by him and with corrections in pencil by him*⟩
Verlot✎
p.4 & 5 Bud variations – good✏
11 Hybridization, ✏ facts on Bryanthium Genera
14 case of Datura illustrating Cytisus Adami
20 ✔✎ Leptosiphon Polemoniaceae✏ case of crossing naturally
28 & 31 Vilmorin on selecting greatest duration
30 causes of variation – age of see♦✐ & time when gathered
32 ✔✎ Individual plants of same variety alone having power of transmission
34 individual dwarf Ageratum sterile
38 ✔✎ case of dwarf Saponaria with no power of transmission
39 another dwarf with strongest power
42 Macnab on different effect on offspring of pollen from difft anthers ✏ of different size ✍ in Rhododendron
46 on crossing Tropical & temperate Amaryllis case like Rhod. Arboreum.
54 inheritance of purple beech & of purple barbary. ✏ Used in Ch xi
56 principle of the 3 colours in flowers.
59 white flowers very rarely vary into other colours
63 & 66 Vilmorin on ✏ origins of ✍ stripe of striped flowers being case of partial reversion. Good. I shew also from crossing. ✏ I think partly used
SB2 ⟨*as SB1*⟩
✏ Copy of Dichog Next
66 ✔✎ Vars of Convolvulus, Antirrhynum & Nemophila naturally crossing good as I know the 2 former are self-fertile
71 Do on dianthus
72 |✎ some plants Tomatos Pimentos &c said never to cross naturally
72 Cases of corellation of colour of flower & seed Q✏
74 White spotted leaves inherited ✏ partly Q
80 Hose & hose primrose sterile
84 Stocks producing mostly double plants quite sterile & a few single-flowered plants by which race is propagated, illustrating production of neutral ants. ✏ Used
85 Old seeds positively said to produce most double flowers ✏ not since disputed
✍ ⟨*CD*⟩ Bears also on selection, knowledge of vars
86 case of gardener who cd distinguish 150 vars of Camellia when not in flower
88 4 cases of monstrous flowers which can be inherited & therefore are not sterile
SB3 ⟨*simile*⟩
89 & 90 On Peloria of Linaria
92 Var. horrida of common Hawthorn ✏ (used)
93 on inheritance of weeping trees
94 Exaggeration of fastigate habits in seedling Irish yew
♦✏

4 *22–27m/23–25w* sport *27u "une famille"* **5** *15–22m/17–18w* sport **11** *27–33m* **14** *14–22m (Naudin)* **22** *19–25m/w* crossed naturally **28** *19–33m* **30** *24–28m/25u "moins récemment"/26u "recueillies sur"/28u "plus|tardives"* **31** *12–18m* **32** *7u "Vilmorin", 8u "plantes|semblables", 9u "même|même", 11–24m/16u "semence|nombre", 18u "tandis|autres", 20u "dans|descendance", 22–24m/1–24w* individual plants transmitting colour vars **34** *8–11m* **38** *17–24m/w* non-inheritance **39** *6–10m* **41** *5–7?/7u* **42** *12–18m (Macnab)* **46** *8–14m, 21–24m* **54** *13–35w* Purple Beech degree of inheritance **55** *17–19m (Bertin)/*Q*/18u "et|variété"* **56** *6–12m* **59** *11–18w* white flowers rarely vary vary into coloured *23u "rose|Robinia"* **61** *3–37m* **62** *wt* The striping is by seminal generation in Vilmorins case by bud-var with tulips & ● in carnations *wb* Gallesio & Lecoq & self with sweet peas show it can come by crossing **63** *wt* I suppose care was rather to prevent the white flowers from being crossed – p.66 care was taken with flowers when one striped *wt* Simple Reversion with crossing *1–6m, 2–6m, 7–30w*♦ Perhaps I ought to allude to Vilmorin under Tulips *30w* done *7–12m/9–12m, 12u "qui|par"/10–15w* see p66 *15–17m/u↔, 27–32m (Vilmorin)/27w* read *29u "manière|graines", 36–37u "par|blanche"* **66** *1–3m, 10u "cultivé|distance"/11u "Nemophila insignis"/8–14m/w* yet self-impregnated *21–25m, 25–28m* **69** *24–27m* **71** *4–7m* **72** *3a/u "Piments", wt*✍ I suppose Pimenta on Jamaica true of the Hills *3–4u "Aubergines|mélangent"/4–5m/3w*✍ Both Solanum *27–36m/15–34w* correlation of colour of flower & seed. **74** *28–35m/28–29m/14–30w* inheritance of spotted leaves **75** *1–5m, 6–10m, 15–22m/w* inheritance **76** *8–12m, 32–34m/*Q✍ **80** *21–*

VERLOT
24m/w Monster sterile **84** *10u "Quarantaine", 11–13m, 16–22m, 16–18u "se | simples", 20–21u "par | simples", 23–24u "si | doubles", 1–25w* excellently good case illustrating selection of neuter ants *33☞/u "Cheiranthus | quarantaine"* **85** *10–24m/w* old seeds produce double flowers **86** *22–26m/22u "Camellia"/24u "150 | inspection"* **88** *8–15m/8u♦/10–13w* Monster inherited Calendula *17–19w* Monster do *25–26w* Monster do *29–31m, 32–34m* **89** *2–4m/3w* neuter *24–26m* **90** *14–16m, 25–28m/25w* Linaria **92** *28–30m/*Q **93** *19–20w* weeping trees *22u "Fogus pendula", 23–26m/24u♠/25u "à | forme", 34m* **94** *2–6m (Macnab), 32m/u♠/ 25–34w* Exaggeration of character

VIARDOT, Louis *Libre examen* Paris; A. Le Chevalier; 1871 [CUL, I]

VIARDOT, Louis *Libre examen* new edn; Paris; A. Le Chevalier; 1872 [Down, I] ℘

VIARDOT, Louis *Libre examen* 5th edn; Paris; C. Reinwald; 1877 [Down, I] ℘

VIARDOT, Louis *Libre examen* 6th edn; Paris; C. Reinwald; 1881 [Down, I]

VIARDOT, Louis *Libre examen* (a fragment starting p. 97) [Down] ℘

VINCENT, Charles W. *The year-book of facts in science and the arts for 1875* London; Ward, Lock & Tyler; 1876 [Down]

VIRCHOW, Rudolf *Cellular pathology* trans. from 2nd edn by F. Chance; London; John Churchill; 1860 [CUL, I]
af, ch, che, ct, em, fg, he, in, pat, phy, sp, sx, t, tm, v

NB O/♦
♦✐ How can 2 widely separated ends of tendon be rejoined by ♣ proliferation of cells from either end – or does connective tissue between rendings then change – No doubt he wd say yes
✍ Sp Theory p334 Mammary glands & sebaceous glands, identical in nature
✐ 442 give up Nisus formativus
SB1 ✍
14 a body represents a social arrangement of parts every element having its own special action
18 an enormous mass everywhere of minute centres of action
27 plastic matter given up – no structure starts de novo
39 everything formed by prolification. important m.s. note
50 cellular view not established for all structures
60 no morbid growth really new
66 Hairs found in Brain
83 early single bone-corpuscle really possesses conditions of nutrition peculiar to itself
123 affinities between definite tissues & definite substances 126 example of do – organic poison & disease
129 great importance shd be given to specific action of the elements of the tissues
155 a pus corpuscle cannot be distinguished from colourless blood-cells
162 Fibrine not excretion, but local formation
187 & 219 cancer spreads by absorbence to ♣ near glands but acctual cells not absorbed – Smallpox can be given by volatile matter & does not require a pus corpuscle.
233 speaks indirectly of all the tissues of body including blood cells building themselves up directly from the Embryonic formative cells of the ovum.*♦
245 on single cells in single skin papilla being diseased & growing into a condyloma
284 whole body consisting of vast number of centres of action –
SB2
294 Woorara poison special action on nerves, & in Bernard, some other book, but such cases are not specialized from single cells
390 & 392 Filmous exudations do not occur in all parts, not in Brain or liver, formed by adjoining parts, with exudations from blood
396 Rejects Blastoma; believes in continuous development of tissues from tissues
398 & 406 connective tissues as germs of the body
399 ovum a cell
400 Two principles, proliferation & division of cells (& endogamous growth within cells less important than latter)
402 subordinate differences in proliferation of cells in morbid structures.
404 Formative cells of embryo exactly alike whether a muscular or nervous element will proceed from them – so they change. & must be impregnated with gemmules
410 In cancer in Bone, the cancer-cells are the indirect descendants of the cells of the Bone.–
SB3
412 cartilage-cells may be converted in medullary or osseous, or back again – changes all ♣

412 fat-globules can pass into cells
414 with cartilage & bone we can always trace direct descendence of cells from cels, but with changed nature
421 Pus can be traced back to the elements of preexisting tissues, generation by generation.
422 Cartilage into bone, into marrow, into granulation tissues & into pus – (NB ♣ these latter changes depend on conditions, & not on gemmules, why not former changes? see MS notes on broken bones
426 In formation of Bone a series of permutations & substitutions
431 Cartilage can only calcify, when it becomes bone it is transformed, the chonodrine changing into gelatine
439 In repair of bones connective tissues become changed into bony tissues
441 every new formation has its origin in preexisting cells – no new acceptions to body – Give up Nisus
445 Pus young tissue with dissolution of intervening matter
450 indifferent formative cells, which might become pus, mucus, or epithelial cells.
SB4
453 granulations in every case arise out of tissues
454 galls & morbid growth show that gemmules not reproduced for change – so change colours of parrots' feathers
Muller about Polypoid growth peculiar to each part✏
460 every single epithelial cell &c leads a sort of parasitical existence in relation to rest of body – so distinct in each cell
463 All new formations are at first of similar♦ same nature
484 allude to dermoid growths in the orang which produce hairs, teeth & sebaceous glands
SB5
Virchow
function of nucleus
14 an individual consists of cells
18, 27, 38 The eye only epidermis for Origin
99 do
39 important M.S. notes
50; 53; 62; 64; 66; 68; 83; 101; 123; 126; 128; 155; 162; 164; 187; 219; 223; 245; 284; 294; ☞✏334 Sp. theory; 441 Species✏ Theory✏; 442 Sp Theory; 445 to 463; 484;
487 All references to Pangenesis except two
SB6 ♦ The independent life according to V. ♣ of each cell or cell-territory ♣ accords well with each cell procreating its own gemmule – making its own offset

xxiii *24m/u "The|continuous"* **11** *1–6m* **14** *6–14m* **18** *13–16m, 15–16m* **27** *9–12m, 15–21m, 34–35m* **38** *19–22m* **39** *wt/↕w/wb* But remember action of pollen on Mother plant: here we have proof that male element can affect cells during proliferation *14–16m (Remak)/15u "proliferation", 20–26w* yet many produce gemmules at each age, but of what use? *20u "proliferation", 23u "exception|lymphatic", 24u "belonging|organs", 27–30m/27–28u "when|divide", wb* the question is whether a new cell formed from gemmule in opposition with another might not be confounded with division or proliferation **50** *7–11m/1–21w*♦ & Paget says muscles, nerves & Blood-vessels are not formed in ♣ effused lymph.– *8a "the"* internal **53** *1–5m* **60** *6c "physiological"/w* natural *20a "every"* newly formed *21–24m* **62** *1–4m, 22–26m* **63** *35u "of|structures"* **64** *2–3u "consists|business", 3–8m/6–7u "Heterotopia|loci"/w* see p.66 **66** *23–32m, 30–32m* **67** *9–12m, 15–18m, 25u "epidermic", 26u "tumour", 27–28u "structure|epidermis", 31u "sometimes|parts", 32u "epidermis", 33u "of lymphatic"* **68** *17–20m* **83** *17–18m/17u "single|corpuscle"* **99** *24–27m* **101** *34–35m, wb* Elastic tissues **123** *15–18m/16–18u "certain|constitution"* **126** *17–23m, 21a "substances", 20–27w* no doubt organic substances poison of Hydrophobic for salivary glands.– *28–20m/w* Blister-Beetle *31–35w* Poisonous Fishes *wb* Small-pox on skin **128** *23–26m* **129** *17–20m, 24–26m* **155** *25–31m* **162** *12–18m* **164** *21–25m* **165** *2–5m, 33–35m* **187** *7–15m* **219** *10u "corpuscular"/w* or cancer-cells *12–17m, 19–22m/w* of cancer *30–33m* **223** *18–22m* **245** *1–5m, 6–11m/7a "papilla"* though so minute *11–12m/11u "acuminate|condyloma"* **284** *4–10m* **294** *32–36m/w* special affinity of organs pulsates○ **334** *17–22m* **335** *17–19m* **338** *28–33m, 33–35m* **339** *10–15m* **390** *22–23m, 28–31m* **391** *4–7m, 35m* **392** *8m, 10–11m/11u "p.162", 14–18m, 31–35m* **393** *4–9m* **396** *2–6m, 21–23m* **397** *21–25m, 27–35m* **398** *7–11m, 14–17m/14–16u "substitute|germs", 26–28m, 33–35m, 35u "connective"* **399** *3u "connected framework", 10–15m (J. Müller, Schwann)* **400** *1–4m, 7–9m* **401** *17–18u "endogenous|cells"* **402** *18–20m, 30–35m* **403** *8–19m, 21–25m* **404** *12–17m* **405** *11–14m* **406** *1–6m, 19–23m, 29–32m* **407** *1–6m* **410** *33–35m* **412** *8–10m/8"...* **413** *1–5m/5...", 17–29m, 18c "in"/u "nuclei|them", 21–33w* i.e. do not generate fat *32–35m/33u "may|fat", wb* if this be so many gemmules may pass into cells – it certainly appeared in intestines & liver that fat passes into & out of cells **414** *15–19m, 16–19m/16u "proliferation"* **421** *28–*

34m **422** *2–26m, 18–21m, 23–26m/23–25w/wb* what a change of nature must have included gemmules; or it is rather chemical, can hardly be chemical as at any age such changes supervene in broken bones.– **425** *13–17m/16–17u "intercellular substance"/17u "artilaginous", 19u "calcification | ensues", 24–27m* **426** *12u "permutations | substitutions", 25–31m* **431** *31–35m* **439** *2–4m, 16–19m, 20–23m* **441** *30–34m* **442** *wt/1–2w* I must give up Nisus formativus *1–8m* **445** *9–12m* **446** *12–14m* **447** *11–14m* **448** *18–23m* **449** *29–34m* **450** *12–17m* **453** *16–19m, 25–27m, 30–32m* **454** *5–8m/wt/1–21w* Galls & morbid growths shows that cells may be modified, without new gemmules by morbid nutrition or stimulus ♣ **455** *15–17m, 25–27m* **457** *8–11m, 29–31m* **458** *25–27m/17–27w* this looks like gemmules **459** *1–5m* **460** *26–35m, 26–28m* **462** *29–30m* **463** *1–9m* **484** *19–24m/22–24u "produce | ovary"* **487** *4–8m, 19–26m* **488** *2–6m*

VIRCHOW, Rudolf *Über einige Merkmale niederer Menschenrassen am Schädel* Berlin; K. Akademie der Wissenschaften; 1875 [Down, I]
h, r

5 *1–3m/1u/3u, 15–18m, 16–19m*

VIRCHOW, Rudolf and HOLZENDORFF, Freiherr von *Sammlung gemeinverständlicher wissenschaftlicher Verträge* 1. Serie; Berlin; Carl Habel; n.d. [Down, I by Theodorus Müller] ℘

VÖCHTING, Hermann *Beiträge zur Morphologie und Anatomie der Rhipsalideen* Leipzig; 1873 [Down, I] ℘

VÖCHTING, Hermann *Botanische Abhandlungen aus dem Gebiet der Morphologie und Physiologie. 3. Der Bau und die Entwick-lung des Stammes der Melastomeen* ed. Johannes Harnstein; Bonn; 1875 [Down, I] ℘

VÖCHTING, Hermann *Über Organbildung im Pflanzenreich* part 1; Bonn; M. Cohen & Sohn; 1878 [CUL]

26 *14–16m* **27** *26–30m* **28** *9–12m* **34** *13–16m* **57** *15–17m* **67** *4u "krautige", 26–28m* **79** *19–21m* **86** *19–22m* **91** *36–37m* **99** *36–37m* **107** *12–22m* **169** *4–8m* **172** *13–17m* **175** *7–10m, 32–33m* **180** *10–12m* **189** *15–17m* **199** *26–28m* **200** *19–20m* **201** *19u "Stachel | Weiden"* **202** *24u "Hollunder", 25–27m* **203** *2–5m/3u "irrige", 27–28m* **209** *23–24m* **211** *1–5m, 21–26m* **213** *4–7m, 12–15m* **215** *15–21m* **233** *20–29m* **242** *14–19m* **244** *11–15m/12u "Anstösse"* **247** *27–30m*

VOGT, Carl *Lectures on man* ed. J. Hunt; London; Longman, Green, Longman & Roberts; 1864 [CUL]
he, ig, sp, t, ts, v

NB ◆ p.45; 395 Turf-swine; 397,8 Cattle; 399 Sheep good; 400 Barley; 355 Herr on do; Used
p.452–453 Transitions 454 457; 458 good 468
SB ☐β
✍ 452 on intermediate forms between the classes & between species.
✍ 454 Do
✍ 455 gives Agassiz blunders on first coming in of various classes
411 Even purely bred black Cats whose pedigree is known for some generations have kittens fairly striped at birth
✏ See back of Page on Transmission of Characters
✍, ◆ 121 Negro pelvis
✍ ⟨*not CD*⟩ p.45
(Species Theory)
C. Vogt

81 *23u "head | rounder", 24u "jaws | skell", 25–38m, 29u "type | skull", 37–38m, wb* over **82** *18–24m* **88** *table.m to lines 1, 5, 23, 27, 29, 31, 33* **90** *22–29m, 30–38m* **91** *15–19m, 32–36m* **121** *33–36m/36u "cuneiform, lengthened"* **127** *9–11m, 12–15m* **129** *12–14m, 20–22m* **133** *14u "self-consciousness"* **137** *15–16m, 18–22m*◆ **150** *6–9m, 6u "gap | diastema", 9–10u "tooth | chimpanzee"* **151** *5–8m* **189** *5–9m/5w* Child **222** *27–32m* **290** *36–38m (Lund)* **355** *10–28m (Rütimeyer, De Candolle, Alphonse)* **356** *26–32m* **395** *28–32m* **396** *1–3m, 7–10m, 34–39m* **397** *4–6m, 17–19m (Rütimeyer)* **398** *2–7m, 11–12m (Owen), 18–22m, 27–30m, 37–38m* **399** *2–5m/4u*♠, *8–11m, 12–15m/m/m/w* Sheep *15m, 23–24m, 28–31m* **400** *30–31m* **411** *7–13m* **421** *19–21m/? (Rengger)* **431** *34–37m* **452** *16–38m* **453** *6–31m (Andreas Wagner)* **454** *26–34m (Gaudry)* **455** *26–39m (Agassiz)* **457** *27–33m* **458** *19–26m (Lovén)* **459** *8–12m* **464** *21–31w* Orang developed Gibbon **465** *2–3w* developed Macacus *12u "mandril", 17–21m (Gratiolet)* **467** *1–2m* **468** *7–20m*

VOGT, Carl *Lettres physiologiques* Paris; C. Reinwald & Co.; 1875 [Down]

NB read to p. 83. May 3d

VOGT, Carl *Mémoire sur les microcéphales ou hommes-singes* Paris; 1862; including **QUATREFAGES DE BRÉAU, J.** *Comptes rendus des séances de l'Académie des Sciences*

64 (1867): 1–5 *[review of Vogt]* [CUL, I]
af, beh, dg, ds, dv, geo, h, he, hl, ig, pat, r, ta, ti, tm, v

Quatrefages, NB 2; 4
title page ✍ Quatrefages on Vogt on Man (important) ✏ All used
2 *22–27m, 29–33m* **3** *3–6m* **4** *6–13m (Gratiolet), 17–20m, 27–30m, 35–38m (Vogt)* **5** *8–11m, 22–24m, 28–31m*

Vogt, SB1 ❑β ✏
This will come under Arrest
Vogt on Microceph; & Quatrefages on Vogt
Add Vogt to names of those who have declared descent of man
50 on Prognathism pithecoid of Microceph – in Anthropomorphic apes the intermaxillary bone disappears very early
54 curious correlations of frontal sinus & muscular force & degraded state & age in man & apes
56 crests for jaw muscles in Microceph & old apes
59 Skulls simian, faces human
73 ages at which last molar or dens sapientiae appears
79 Apes born with relative larger skulls or brain than Man
125 126 idiots case like endowed with less surface✏ of brain than simiae ✏ but more in mass
168 good. Desor no dom. animals imitate; notorious that monkeys do – so do savages so do grt. microcephalic idiots – Imitation no doubt plays a most important part in education
176 idiot, when Brain excited near death, recalled old recollections so do animals, remember without thinking of them.
184 are very fond of climbing: one does not doubt the Theory of lambs, & kids frisking on a tiny hillock as alpine animals, but every one wd laugh at passion in Boys for climbing trees being remnant of arboreal Habits.–
SB2 ❑β
197 summary on Skulls & brains of Microcephalous
199 on parentage of man – from a form lower even than Ouistitis
Quatrefages
p.3 argues that man not descended from Anthropomorphous but I think Vogt expressly admits this.
p.4 admits Gratiolets view of no real affinity between Anthropomorphous apes – Blyth admits also.– says man not descended from one ape. but that all apes & man descended from a common unknown type – quote Quatrefages – but this implies so much convergence I cannot admit – probably the split was taken way back
SB3 Vogt p.169 Micro tendency to imitation to extraordinary dgree
171 Micro dumb
Small skulls – yet development of frontal sinus – prognath going dumb – good♦ strong tendency to imitation, eg fond of climbing
p.197 convolutions of brain simpler
198 Prognathus effrayant
184 strong, very active, jumping & gambolling – grimaces – go up stairs on all 4s
185 Versatile – attention never long to anything – intelligence below that of animals

20 *30u "docteur Behn", 31–32m/31u "treize ans"/32u "en rougissant"* **21** *4–6m/5u "oeil | une"* **26** *30–32m* **27** *1–2m/1u "en | tête"/2u "d'une | suivants"/3u "accentuer | fortement"* **50** *8–10m, 16–18m* **54** *20–21m, 22–23w* correlation *25–27m, 27–28m* **56** *1–6m* **57** *21m* **59** *1–3m* **73** *10–12m* **78** *6m* **79** *6–11m* **124** *13–17m (Rudolf Wagner)* **125** *11–13m* **126** *4–9m* **127** *3–4m* **156** *25–31m/27w* correlation **160** *3–6m* **168** *27–31m* **169** *1–3m, 6–8m, 20–24m, 26–27m/26w* Savages **176** *3–10m* **184** *25–28m* **185** *13u "versatilité", 22–24m* **191** *17–22m* **194** *17–29m (Rütimeyer)* **197** *2–11m/9u "requius", 27–30m, 32m* **198** *2–4m, 20u "prognathisme effrayant"* **199** *30–32m* **200** *1–3m, 15–17m (Lartet), 19–23m*

VOGT, Carl *Über die Aufgänge der Organismen* Hadelborn; Ferdinand Schöningh; 1870 [Down]

VOLZ, Wilhelm *Beiträge zur Kulturgeschichte* Leipzig; G. Teubner; 1852 [CUL]
beh, br, ch, cs, ex, gd, h, hy, is, mg, oo, or, no, sl, sp, t, ta, v, wd

NB ✍
77 Goose 78 Duck Antiquity
NB2 Many important marks; marked from here p137; p226; p230; p232; p264; p371; 380; 400; 455
NB3 p.99; ☞ Dates of Authors; p392♦
SB ❐ℜ
7 Bischof ♣ see beginning says seeds stick to water Birds
47 X✎ Mixing of races forbidden – 3 Moses 19.19 shows was attended to & done
76 x✎ Polycrates of Samos had done much to improve cattle (which cd only be selection)

VOLZ
78 age of Fowls well made out – Duck not known tame in Aristotles
80 X✎ Alexander chose best Indian cattle to send home
91 Sheep & Goat in Ctesias time larger than in Europe
99 X✎ increase in number of varieties of Plants & <u>Dates</u>
115 History of Dog – sheep dogs shd be white
114 x✎ Sheep in Columellas time improved by cross
137 Ducks introduced in Germany from Rome. Anas Enten
226 increase of animals in S. America
229 2 breeds of cattle in Brazil
231 Newfoundland not fd in N. England when discovered
400 Alpine cattle generally small <u>Q</u>

5 *39–40m (Brown)/39–45w* 13 plants in W. Africa from W. Indies are there any American genera? **6** *16–20m/w* Siebold says Mays washed ashore in Japan 1200 years ago *43m (Link), 44m (Siebold)* **7** *wt* No precise facts in regards to distant migration *3–8w* Bischoff seeds hang to water-Birds. Look to this *4–6m, 9–13w* Have any water-Plants hooked seeds – *16–21w* cases of distribution of plants in own country by animals *29–30m/w* so first Rose transported No precise facts **8** *15m, 23u♠/22–29m/w* It might be questioned whether these species not created during period of agriculture **10** *27m* **12** *wt/1–10m/w* Flowers of potatoes same on Ms of Chile, as in plains of Siberia *10–16w* Cereals same in Aegypt old & new *16–22w* onion from mummy hand grew!!! like present *32u "Blumenkohl", 32–35m/w* Cauliflower ? introduced 16 **13** *13–20m/w* Citron changed since time of Palladius *35–42w* 1500–1600 only wild Tulips now 5000 kinds of Tulips **17** *wb* N.B as many, even most Camels? <u>Sheep</u> cd not run wild, or all domestic animals have run wild, whereas many vegetables in their present recognisable forms as wheat, probably wd become extinct with man: it shows plants most altered. To some extent it may be that plants more diffused & everywhere better stocked.– C.D. **19** *23w* Barley *25–26w* Origins not known of these *25w* Rye *25w* Wheat *25u/wτ, 26u/wτ, 27u/wτ, 41–44?/m (Dureau)* **21** *34–36w* Sheep never run wild **22** *19–23m/w* Camels run wild in S. Siberia **23** *11–15m/w* Places where wild Horses said to exist formerly **24** *wt/1–17w* Reichenbach has an astonishing theory that races of Dog get like the animals they pursue. Quote perhaps for folly *1–20m, 29u "wussten"/28–32m/w* The Greeks had not dogs with hanging ears? **25** *7u "948"/7–10w* Cats previous in this year *41u "Truthühner"/w* Turkey **26** *wt* Hens known in oldest times of Aegypt *1m, 2–4m/2u "Hesiod | Testament", 3–4w* Hens not mentioned *19–20m/17–22w* old Aegyptians distinguished wild & tame geese **29** *30m* **35** *31m* **46** *20–27w* Moses speaks of Cinnamon so common very old *30m, 33–35w* Peacock "Kings" *43m* **47** *1–5w* Horses brought by Soliman from Aegypt *10u "Abraham"/11u "Tauben"/10–13m/w* Abraham Pigeons *26–27m, 39m, 42m/w* Pigeons *46m, wb* Mixing of races forbidden: this shows formerly done or by other nations **48** *wt* The antiquity of races is very important in showing how very slow variation is – Horses have varied since *2–6m/w* 2 races of donkeys in Abrahams time Hence have varied since *11–13m/w* <u>Pigeon</u> let out of ark *14–16m/14–19w* In old Testament hens not mentioned *32–33w* wheat barley spelt **49** *11u↔/w* Leek Onion *18–23w* Wine olive figs pomegranate **50** *24w* almond **51** *2–7w* Plums Pears Quince Trees **56** *8u "Schafe | Kameele"/7–9w* Sheep Camels Ass Cattle *13–14w* In old Aegypt no Buffalo *14–18w* horses like Dongola *16–25w* horses in Moses time but their cultivation not that ancient apparently **57** *wt* Terrier *1–5m/3u "Windhunden | Arten"/w* Greyhound *16–17w* Geese Pigeons **58** *1–2w* 2 kinds of Barley **69** *10m* **70** *29–31m/w* Grafting attributed by Athenians to Eumolpus **73** *6m* **75** *16u "Theophrast"/18u "Kopfsalat"/16–17m/16–22w* 2 kinds of cabbages cabbage lettuce vars of Lettuce in time of Athenians **76** *wt/3–6m/1–7w* Polycrates of Samos had done much to improve breed of Oxen *17m, 25–30w* Horses of Phidias, fiery, simple but noble *32–38w* mules in Homers time Swine do **77** *8–17w* Great Molossus dog from Albania in Alexanders time *26–27w* Hunting dogs & Grey-hounds X *37w* <u>Goose</u> *38u "Homer", 42u "noch | bekannt"/41–42w/wb* Fowls not known to Homer or Hesiod, but later *wb* X certainly strong argument that so little done in last few 1000 years, compared to what must have been done before **78** *wt/1–8w* Athenaus says imported from Persia. Hence not Europe – age well made out of Fowls *1–3m/m (Homer), 4–6m/w* Duck not tame in Aristotles times in Greece *16u "Perlhühner"/21u "Pfauen"/14–26w* Peacocks & Guinea-fowls in Aristotles times – (Perhaps extinct again in Dark Ages. C.D.) **79** *wb* Aelian 222 after Christ **80** *5–10m/w* Alexander chose the best of the Indian cattle to send to Macedonia to improve the Breed *7u/wτ* **81** *18–25w* Elephants tamed long before Alexanders times in india **84** *6u/wτ* **85** *17–23w* North China native Land of Silk Worm **88** *38–43w* Peach not common in Theophrastes times **89** *1–5w* in Lucullus times sweet cherries in Europe *26u♠/26–28w* mentioned by Strabo & Aelian *38m, wb* All these facts impress on me that at one period there is limit of amount of variation. **91** *5–13w* Times of Ctesias sheep & Goats larger in India than Europe **98** *20–33w* Spread of Fruit Trees **99** *tab.w* Increase of varieties *30–33m, wb* p.79 Aelian 222 after Chr. Dates **100** *5–7w* Roman Pears **107** *5m* **109** *38w* Savoy **110** *1u "Krauskohl"/w* Cabbage *1–4w* Broccoli 5 kinds *7–13m/7–8u♠/8u♠/w* Romans *9u♠* **113** *3m/u "Plinius | Rosen"/w* Roses **114** *wt/1–15w* Spanish sheep celebrated for wool in Columellas time improved by cross of N. African *25u "man"/w* Ferretts *33a "nicht"/29–30w* un??? *30–33m/w* arose in time of Roman Emperors *32m/w* (a) *34w* Nictures *wb* (a) Our present beloved races of Dogs not known to Graecians & Romans, as clear from Monuments **115** *wt* A.D. 79 Herculaneum & Pompei buried in Pliny's time *1u "Herculaneum | Stabiä", 1–4w* all belong to rough spitz-Dogs *2a "Pudel"* Spaniel & Poodle *2–3w* first in time of Augustus *3u "Schoos", 5–7w* Lap-Dogs as large as squirrels *9u "Schäferhund"/w* Sheep-dogs *38–43w* Sheep dogs white not to mistake for wolf Q **117** *30m* **128** *17–27w* Caesars time English great Dogs & Horses taken to Rome *26–29m* **137** *28–31m/w* Ducks introduced from Rome **226** *6–11m, 18–21m* **229** *33–37m, 35u "sehr verschiedener", 36u "unterscheidet | wenig", 45m* **230** *39m, 40u "allein | geblieben"/39–40m/w* sheep have not run wild **231** *37–45m/w* Newfoundland not f in New England when discovered **232** *42–45?, wb* Das Ausland a Periodical **264** *14–21w* not received from almond *22–26m/w* new maize **371** *23–25m/w* S. Sea isld *26–29m* **380** *17–22m* **400** *26–30m, 41–45m/42u "Berg vieh"/45u "Simmenthaler | Freiburger"* **455** *38–39m*

VRIES, Hugo de *Over de Bewegingen der Ranken van Sicyos* Amsterdam; 1880 [Down]
℘

VULPIAN, Alfred and CARVILLE, Henri Canille *Leçons sur l'appareil vaso-moteur* 2 vols.; Paris; Germer Baillière; 1875 [Down]
℘

WAGNER, Moritz *The Darwinian theory and the law of migration of organisms* trans. James L. Laird; London; Edward Stanford; 1873 [Down] ℘

WAGNER, Rudolf *Elements of the comparative anatomy of the vertebrate animals* ed. Alfred Tulk; London; Longman, Brown, Green & Longman; 1845 [CUL]
em, phy, rd, sp, sx, sy, tm, v

NB March 27 – 46
Read as far as p.130 & marked thus far – & I do not think worth reading further–
SB ❐ℜ
4. Hairs even in Ant-eater & Ornithorhyncus (good remarks on Skeleton & bones)
43 gall-bladder
36 Narwhal 1 large tooth, the other small
60 on great diversity of foetal envelopes
70 Skull of Birds
73 Cervical vertebrae so constant in mammals variable in Birds
78 Rudimental bones in Birds
98 Tongue ✍ rudimental
109 On Trachea differing much in allied species & between 2 sexes of same species
124 on <u>stages</u> in rudimentary state of right ovaria in Birds
217. On Electric fishes.

4 *8–14m/w* any relation to absence of teeth? **5** *6–11m/w* what a different order from true relations *⇑11–8m* **6** *⇑11–9m, ⇑1u↔* **7** *⇑11–10m* **10** *3–4m, ⇑7–4m* **14** *8–10m,14–16m, ⇑3x* **15** *3–8m* **16** *15–19m, 20–22m, 23–24m/24u "to | wanting", 27–30m* **17** *11–13m, 18–20m* **18** *10–13m* **19** *⇑8–6m* **21** *⇑10–9m* **25** *⇑14–13m, ⇑12–11m* **26** *⇑15m/u "but | of"* **32** *7–9m* **35** *⇑14–13m* **36** *14–16m, 18x, ⇑10–8m, ⇑7u "molar | fall"* **43** *⇑11m* **44** *⇑2–1x* **45** *8–9m* **46** *10–11m* **48** *⇑21–21m* **49** *4–5m* **50** *2–3m* **55** *4–6m* **58** *3–7m* **59** *15–18m* **60** *8–10m, ⇑12–6m/m/w* strange! **68** *14m, ⇑5–2m* **69** *⇑10–9m* **73** *⇑10–8m, ⇑8u "the Swan", ⇑7u "also 24"/x/w* (a) *wb* Yet very constant in Mammalia? **75** *⇑19–11m* **76** *12–15m* **77** *6u "Trochilus, Cypselus"* **78** *16–18m/16u "rudiment", ⇑19–16m, ⇑14–13m, ⇑8m/u "wanting | Emeu"* **79** *16–18m, 20–22m, 27–29m* **92** *⇑20–15m* **98** *16–20m* **109** *⇑13–9m, ⇑5–1m* **110** *↕m, ⇑13u "convolution | the", ⇑11–7m* **114** *15u "Anas semipalmata", 19u "both | Grus", 23u "in | extremity", 24u "the sexes"* **117** *2u "male Mergansers", 10–12m* **124** *⇑21m/u "right | rudimentary", ⇑19–18m, ⇑17–9m* **125** *1–2m* **127** *6–8m* **132** *⇑18u/c/w∉* **217** *⇑21–20u "order | Fishes", ⇑18–17u↔, ⇑8u "Narcine | Torpedo", ⇑6u "Form | Eels", ⇑5u♠, ⇑1u♠*

WAGNER, Rudolf *Zoologisch-anthropologische Untersuchungen I* Göttingen; Dietrichschen Buchhandlung; 1861 [CUL, S, I]
ds, gd, sp, ts

NB 51 (Quote Baer as believer in change)
34 *1–4m* **44** *13–17m* **50** *⇑9m/*, wb* I believe in X Vol of St Petersburgh Memoirs see p.44 apparently 1859 Memoirs of the Imp Acad of Sci in St Petersburg. **51** *⇑3–1m, wb* V. B to whom all zoologists feel so profound a respect in M.. about yr 1859 expresses his conviction, wholly grounded on the facts of geoph distribution, that forms, now perfectly distinct, have proceeded from a single parent-form

WAITZ, Theodor *Introduction to anthropology* vol. 1; ed. J.F. Collingwood; London; Longman, Green, Longman & Roberts; 1863 [CUL]
beh, h, pat, sl, sp, ss, sx, t, ti, v, y

NB ♦ Too dull to read; 135 Blushing
SB1 p287 When I speak of antiquity of Man, I might add as shown by the branching off of languages & by their very formation
♦ p305 sexual selection good man.
➾ When I speak of evidence of theory of N. selection – add ♣ "the progressive advance in organization – & diversifications of structure & host of other such points–"
SB2 ⟨*over; some gone over in ink*⟩
Waitz Anthropology
208 Virey makes 2 species of Man viz Negro & all others
198 Agassiz changed from 11 or 12 to 8 species
209 Differences of Negros – very variable race of man.
224 on variability of skulls in same race
227 on different classifications of men no two authors agree in manner of grouping
♦ 96 Beard
99 Colour of Children, when young ✓✎
♦ 105 Negros fat Buttock beautiful; 107 foreheads of Peruvians
113 Excessive Mortality in children young in Australia
124 ✓✎ Yellow-fever of Negros – doubts on
238♦ Feet of Chinese small
266 Capacity of crania in relation to intellect. When speaking of what races have in common, I ought to insist on all having the art of articulate Language
275 All races adorn themselves – quote ✓✎
291 Belief in an invisible power I might quote York Minster. No Devil in his country

iv *18–26m/18–19w* I ought to read **v** *21m/w* I have read **vii** *25–31m, 31–37m* **viii** *3–5m* **90** *18w* I have read whole section **96** *16–20m* **99** *20–32m (Camper)* **105** *26–30m* **107** *13–17m (Morton)* **113** *5–10m* **124** *6–32m* **135** *3–13m/7–9u "shame", 14–22m (Roth, d'Orbigny, Spix, Martius), 21–22m* **198** *7u "distribute|twelve", 8u "eight"* **208** *14–17m* **227** *1–22m* **238** *4–8m* **266** *5–8m* **275** *1–3m* **278** *21u "invisible", 24–25u "invisible|which"* **305** *1–3m, 10–11m, 12–14m, 19–20m, 24–25m, 26u✍ "rosy|flowers", 34m, 35m, 37m, 39m*

WAKE, Charles Staniland *Chapters on man* London; Trübner & Co.; 1868 [CUL]
beh, h, v

NB1 It would be useless to discuss – the possession of general ideas, abstraction, & the various forms of consciousness, as hardly two writers ♣ use those words ♣ in exactly the same sense; or, ♣ have come to any general agreement on difference between Mind of Man & Animals– Nor do we know what a wise old animal fully awake & not occupied thinks about.– These points ♣ must be left under our present state of knowledge. Apparently we shall come only to a definite conclusion, when it is admitted from other eivdence that the mind of Man has been developed from ♣ mental powers possessed by a quadrumanous animal – All too abstruse for me.–
NB2 ♦ Man Used; Carpenter Man differs in degree 79; Self-consciousness 81; Spiritual perception criteria of 97 Man; On high art in languages of –101 Savages; Hottentots most distinct 172 from Negros; 199 Frizzled Hair in Americans 205

79 *11–29m (Carpenter, Brougham)* **81** *17–21m (Mansel)* **97** *16–17u "spiritual|ideas"* **101** *24u "on|acquaintanceship"/24–27m (F. von Schlegel), 30m* **102** *7–10m (Du Ponceau), 23–25w* Monkeys use stones **172** *6–12m* **199** *3–16m* **205** *9–10m, 16–18m, 20–23m*

WAKE, Charles Staniland *Chapters on man* London; Trübner & Co.; 1868 [Down]

NB O/

WALDNER, Heinrich *Deutschlands Faune* 2 parts; Heidelberg, C. Winter; 1879–80 [Down, I]

WALKER, Alexander *Intermarriage* London; Churchill; 1838 [CUL]
af, beh, br, cs, dg, em, f, fg, h, he, hy, in, mn, or, phy, sp, sx, t, ta, ti, tm, ud, v, y

NB1

♦ Put the case to Sir J. Sebright of two half breed mongrels exactly like each other being interbred – will offspring not be then constant – Ask his opinion of Walkers Book –

♦ Ask Mr Ford whether he has ever matched two half bred animals which were closely alike & yet the offspring varied –

♦ Progeny of hybrid plants stable

♦ In all crosses of varieties, according to Mr W offspring ought to take in form after male What has Mr Blaine written p.271 Mr Hunt p.290 & Mr Thacker 291

NB2 It is singular twins being so like, & yet between two litter in Man, or in litters so unlike

♦ Experiments.– To cross some very artificial male with old female – according to Mr Walker, the former ought to preponderate in body – according to Mr Yarrells theory ♣ the father ought either in first breed or permanently.– Cross half breed with some other breeds – to see whether grandfather will appear – Cross two 1/2 breeds exactly similar.

NB3 24; 61; 107; 112; 118; 120; 124; From 139 to 144; 152; 163; 175; 177; 182; 202; 205; 209; 210; 214 to 243; 258; 266; 270; 244; 275; 276; 281; 282; 290; 299; 301; 303; 309; 312; 322; 361; 362; 377; 379; 396 – on Hermaphroditism

SB1 Argument against Mr Walkers law – The intellect & instinct in a cross-breed comes from both parents, as in shepherd dog &c &c – now one would have thought if one parent gave one part & one another, nothing would be so little divisible as the thinking faculty–

SB2 ❑β

24 Capons are female castrated

140 Hereditary fingers & toes

205 Knight on cross of Drayhorse & pony

161 Knight says long faces go with long limbs – Hard to get head of Greyhound on Bull-Dog

206 do says the male in Hybrids overrules female in giving form

209 A well-bred animal will give preponderance 216 do

223 Wilkinson says he has seen breed between long & short horned permanently made

228 Knight believes in breeding in & in ♣ – Walker sums up authors Ch 3

243 do – put pollen of 2 colours on female & both kinds when produced not mixed

244 Bitches more inclined to pair with one Dog than another p.276

275 effects of imagination on offspring

299 Knight thinks keeping cattle under different circumstances prevent it of in & in

362 on advantages of crossed races of Man

377 Accoucheurs state hands of labourers infants larger (disuse)

SB3 ⟨*4 pages*⟩ ✍

I reject Mr Walker's theory of one parent giving (see p.150) one series of organs & ♣ the other a different set.– because

(1) the propagation of plants. as we see in their crossing &c &c. is closely similar to that animals, now, in plants we cannot ♣ separate the organs into any two analogous divisions – ♣ In plants, according to Mr K either father or mother can give "excitability" (& I daresay other similar case could be gathered) now excitability or constitutional peculiarities would scarcely be given in one system of organs.–

2d The kind of argument in favour of it, are such as Phrenologists advance. (one series affecting muscle & another their supports, ie only in the face) – does not hold good in my experience. or rather a double answer might be given

When different variations cross, the offspring take ♣ the locomotive system from the male, because, the male has greatest desire for the female being very ⟨*over*⟩ different – according to this, this law, would be quite interfered with in ♣ a case where the ♣ ova were impregnated by the semen of the male, as in fishes & frogs, & yet we know that mule fishes occur, & that it is not necessary in insects or fish that male should see female.– Moreover, how in cross of black & white man. & different varieties of dogs come there to be litters ♣ of puppies some taking after mother & some father.– Again, there seems to be as much law (& as doubtful) in crosses of plants, the greater desire of the male is absurd – Again in some cases, the cross-bred offspring vary much. (as in passion flowers described by Sabine) here then no certain law appears to prevail. Again Mr. W. admits the offspring of cross breeds. p.220 revert, & explains it by. one having the system of ⟨*over*⟩ one parent, & another a different one – yet by his "law of crossing" all will have locomotive system of male, & hence the possibility of this Heterogeneity depends on ♣ male being less vigorous than female.– (& this is next thing to assumption. for if other wise would have been recognized in human race)

WALKER, A., INTERMARRIAGE

How will Mr. Walker laws explain plants which show traces of 3 parents as in plants i& –? animals as ass & Zebra & horse ♣ &c of gardens – This will overthrow his system: no because he allows. (p.301) that one series modifies another! here is cause of error!
He bases some of his view on axiom that "organization is ♣ indestructible" (p.224) how have our varieties been formed?!!
Law of Breeding in & in
Female always giving locomotive series.– probably invented to explain the loss of secondary character in the male, but is not this more probably effect of infertility. which likewise affects the female.–
⟨*over*⟩ I must think there is no difference in laws of resemblance to parents in species, varieties, & individuals –

24 *4–8m* **107** *8–19m* **112** *25–28m* **118** *11–23m* **120** *4–8m* **124** *24–28m* **125** *1–10m* **139** *14–28m (Réaumur, Carlisle)* **140** *11–28m/22a "this"* great Q **143** *5–13m/6–9w* This must be case of jumping one **144** *19–27m* **152** *24–29m/w*♦ Colour f. has form of father – **160** *26–28m (Knight)* **161** *1–14m/2–4w* Law of symmetry **163** *19–23m* **164** *4–14w* Analogous to Renngers descriptions of dogs in Paraguay & Horses & Cows *18–23m/w* do not go back – yet not fixed, like species **165** *17–19??* **175** *10–22m (Clarke, Lewis)* **177** *9–26m (Knight)* **182** *5–11m/8–9w* See p.191 **191** *12–19m* **202** *13–22m/w* How will this apply to Plants & cases where impregnation is external **205** *wt* He would thus doubtless explain the effects of Arabian *1–5m, 6–10m, 11–15m/w* this is absolutely different from some other authors **206** *9–18m, 11–13m* **207** *1–11m* **209** *1–28m, 20–28m* **210** *5–8m, 24–25m* **211** *1–2m, 4–5m* **212** *1–3m, 17–21m* **213** *7–13m/w* according to Mr W. theory, whole bird ought to resemble *19–20m/20m/u "the|vital"/20–22w* I do not see proof of this **214** *2–29m* **215** *1–6m, 19–20m/!!, wb* As yet no notice whatever is taken of litters, where one puppy is of one kind & another of another,–! **216** *8–14m, 11–14m, 15–26m/18–21w* I do not understand **217** *11–21m, 21–28m (Sebright)* **218** *26–28m* **219** *1–8m* **220** *wt* Surely not if C exactly resemble D, yet these will vary I presume, according to views of Knight & Co. *3–5m, 5–7u "for|occur"/6–8m, 7–15w* so that on this depends the possibility of heterogeneous offspring accounting for reversion *wb* But yet in these crosses I thought the male always prevailed.– The offspring of very wide crosses, when male certainly does preponderate, ought to be uniform **221** *wt* If halfbred animal is crossed with some distinct breed, the character of grandfather will reappear, now here breed age surely must be an element ♣ is case true?? *15–20m/w* but here I may assert that time comes in as element **222** *wt* Now this is question in point *1–6m, 10–12m/w* (a) *wb* Is this not explicable on the idea of breeds♦ time asserting the permanency in future generations. the cross-bred animal its characters perfectly, the mule not at all **223** *19–28w* between breeds of equal antiquity the tendency to vary would be less – **224** *3–11m (Knight), 27–28!/u "Organization|indestructible", wb* What is origin of all our varieties!! **226** *7–14m* **227** *5–25m (Sebright)/6–14w* is not vice versâ. They degenerate because they lose productive powers **228** *5–6m/?, 25–28m* **229** *wt* The converse of the law♦ ill effects of breeding in & in holds in Plants.– namely crosses being more fertile – therefore effects of desire of male nonsense *6–8m/!!!, 9m, zb, wb* Plants & Fish &c!! **230** *1a "female"* young or female **231** *13–20m, 20–28m/24–26u*↔ **232** *24–26!!/25u "excitement", wb* plants & Fish **233** *27–29!/29u "excitment|power"* **234** *20–29m, wb* I would rather trust the Practical Sense of Sir J.S.! **236** *22–26m* **237** *22–27m (Sebright)* **243** *15–21m* **244** *5–6m* **258** *8–12m* **266** *8–15m/9–10w* Dr Holland **270** *6–13m (De Candolle, A.P.), 6–28m (Pritchard, Good)* **271** *5–27m, 4–5??/5u "Blaine", 13–15m, 18–28w* This is the opposite of the case I want – I want new variety **275** *12–23m* **276** *6–8m, 17u*✏ *"pug|spaniel"/w* Blaine *18–28m, 24–26m* **277** *9u*✏ *"female setter", 11u*✏ *"mongrel", 17u*✏ *"refused intimacy"/17–26m* **280** *27–28m* **281** *23–26m/"..."* **282** *3–9m* **290** *6–8?/7u "Mr Hunt"* **291** *15u "Mr Thacker"* **299** *1–14m* **301** *6–13m (Wilkinson)/!!!* **303** *4–6m, 11–22m* **309** *1–13m/w* 3 solutions may be here given **312** *wt* surely same law to ordinary births, not to crosses *1–5m/w* dogs in litter *9–10m/?* **322** *14–16m* **328** *1–4m/w* Kangaroo!!! **361** *3–21m (Prichard, Pallas)* **362** *4–17m (Moodie)* **363** *1–23m (Hancock)* **377** *12–17m* **379** *4–7m/4–13w* about Stallion broken leg see Mr Knights facts on this head I think it is in part where ♣ discussed **396** *8–28m* **397** *6–14m* **398** *13–17m*

WALKER, Francis *Monographia Chalciditum* London; Hyppolitus Baillière; 1839 [Down, I] ℘

WALKER, John and Charles *Atlas of the British Isles* London; 1837 [Down]

WALLACE, Alfred Russel *Contributions to the theory of natural selection* London; Macmillan & Co.; 1870 [CUL]
beh, fo, h, he, hl, pat, ss, sx, t, ti, v

NB1 350; intelligent power 356 & 359
NB2 113 a female mocking Diademas Butterflies
205 Instincts of nidification
◆ 225 Man
229 mistaken instinct
221 Song of Birds acquired confirmed by Hon Herbert, I suppose in his edition of White – see L. Jenyns
◆ 353 Santals wd not break their parole

204 *wt* Female Ants leave the nest & cannot have seen but very little of the Work done by the Workers & yet have offspring It is wonderf. **205** *wt* Cuckoo – Tanagrella *4–8w* The last female Bee which is hatched *14–15w* cocoons of Butterflies *wb* Solitary Wasps Spiders **214** *8–29w* Think of influence of Language Antiquity of Man Brazil & California **219** *9–11m/10–11u "simple| hereditary"* **221** *14–19m (Herbert)* **225** *1–28w* A Man does not make a canoe or arrow-head without practice – so differs from Birds – all a fallacy **229** *5–13w* mistaken instinct **292** *15–30m/17–21"..."✍/17c¢/19–22m* **293** *7–19m, 22–30m* **294** *7–15m* **336** *19–21m/4–30w* Yet it must be added that some extremely ancient skulls were fairly well developed *29–30m (Lubbock, Huxley)* **338** *23–25m* **340** *3–5m* **342** *1–23w* There is all the difference in the World between an instinct (ie not hereditary habit) & intellectual act **343** *wt* It is brain here & not use of hands *3–6m, 9–11m/10–11u "his| disproportionate"* **344** *20–26m/16–29w* If we look to detail to usage of hair above the lips, over whole body **346** *21–29m/6–29w* Under sexual selection – like injury for Horns of Stags **350** *6–11m* **351** *24–28m/w* incitable/ incidental *wb* Perhaps specify thus *wb* He who can count & reason & do the rest *wb* No new faculty **353** *11–15m* **356** *12–15m/!* **359** *7–8u* **371** *wb* I admit the possibility but I do not see the necessity or evidence in interference for the production of man as distinct from the production of lower animals.

WALLACE, Alfred Russel *Contributions to the theory of natural selection* 2nd edn; London; Macmillan & Co.; 1871 [Down, I]

WALLACE, Alfred Russel *The geographical distribution of animals* 2 vols; London; Macmillan & Co.; 1876 [CUL, I]

cc, ex, fo, gd, geo, hl, is, mg, oo, no, sp, t, tm, v, ve

vol. 1 NB ◆
463 poverty of insects & inconspicuous flowers
Frogs ice – salt-water; Galaxias – without further evidence your view on which provides complications; Bates – T. del Fuego; Poverty of insect life; Aromatic leaves as a protection like thorns
NB2 p.9.
I can hardly believe in connection between Africa & Ceylon see p.328 Blandford?
Capital remark on head of Argus How plain a char is when once explained!
Explanation of Java admirable
426 Mammoth in Timor
References
I am very glad of your somewhat changed views of the wonderful Celebes
SB ✍
Geograph. Distrib.
p.9 to 34 Means of dispersal.
p.20 Migration
p.36 Whole book on Distribution, so I will not give Pages.–
p.346 Argus Pheasant – Head not ornamented
p.463 Poverty of bright flowers corelated with Poverty of insects

9 *32–35m* **18** *15w* Tortoises **20** *34–38m (Serres)* **21** *9u "moderate widths"/w* Berents **24** *30–37m* **36** *9–11m, 12–15m* **37** *12–18m* **43** *10–14m/w* Canaries C de Verde?? Volcanic Etna? *32–37m/32w* Axell Blytt **52** *1–5m, 5–8m* **53** *19–26m* **56** *17–22m/w* no they must have **57** *21–26m* **59** *5–6u "Madagascar"/?, 11–12?, 16–20m (Günther)* **76** *wt* No look at depth **118** *6–13m/11u "animals"/13u "Miocene"* **150** *4–23m, 25–32m* **151** *1–5m* **157** *9–12m, 25–28m* **158** *24–29w* cd Man have destroyed the largest *31–37m/w* yet higher animals change quicker than low **162** *28–32m* **163** *15–18m* **167** *33–37m* **168** *12–17m* **174** *14–19m/w* Antarctic Land **175** *33–36m* **206** *28–30m* **207** *1–11m, 14–21m* **208** *1–7m, 9–18m, 17–25m* **209** *1–12m, 15–27m, 29–36m* **210** *10–13m* **211** *22–28m* **212** *16–21m, 25–28m* **218** *34–37m (Wallace)* **263** *27–30m* **265** *29–37m* **268** *26–28m* **269** *22–26m* **273** *12–15m* **274** *4–11m* **277** *8–14m, 16–19m* **278** *11–14w* Madagascar 1000 miles long *15u "lost continent"/?* **279** *11–14m* **280** *7–9m* **281** *9–13m, 14–16m, 24m, 34–36m* **282** *8–20m, 28–30m, 33–36m* **283** *1–9m, 23–24m* **284** *7–12m, 16–25m, 29–33m* **285** *1–5m* **286** *1–13m, 22–26m, 33–37m* **287** *1–3m/?, 11–15m/?, 28–34m, 34–37m* **288** *34–36?* **289** *20–26m, 28–35m* **291**

11–14m, 18–19m, 31–36m **327** *1–4m, 18–24m* **328** *1–7m, 8–14m, 18–27m/w* A continent since Permian times **340** *9–14m* **341** *14–34m* **345** *7–11m* **346** *1–4m, 32–36m* **352** *25–37m* **357** *29–36m* **358** *12–24m* **359** *17–22m/w* ? during Miocene more tropical & this cd have made a larger tropical Land *30–35m* **362** *22–31m* **391** *33–37m* **395** *10–19m (Wallace)* **400** *12–26m, 19–29m, 30–34m* **401** *11–23m, 30–37m (Günther)* **402** *13–19m* **403** *7–28m/w* The one fish may have kept long to same species **406** *6–14m* **413** *4–12m, 19–26m* **416** *19–28m, 33–37m* **417** *23–25m* **419** *27–36m* **421** *28–31m* **424** *7–16m* **425** *1–4m, 27–37m* **426** *24–28m/w* Mammoth **436** *16–20m* **438** *4–15m, 35–36m/w* Flora! **440** *15–19m* **442** *1–2m* **446** *3–7m, 24–29m* **447** *6–11m, 12–23m, 26–34m* **448** *27–39m (Günther)* **449** *10–14m, 16–19m* **452** *31–41m* **453** *23–33m/w*♦ May they not have in **454** *27–34m* **460** *27–37m* **461** *1–11m, 25–37m* **462** *25–34m* **463** *1–18m, 35–37m (Hooker)* **464** *8–13m*

vol. 2 NB1 ⟨*draft of letter sent 26 June 1876*⟩
References Forel – Hooker Great care with which you have worked the Southern part of S. America – I suspect you argue too strongly on the necessity of a large area for the development of many forms.– So many species of same genera on many volcanic islands in inviolated valleys seems sufficient
122 Error??
252 I doubt, though I agree with Principle
265
359 Error
I like much the discussion on the distribution of Land-shells
Axell Blytt paper
NB2 All marked on Geographical Distribution.–
p.205 N. seals in Baikal
465 Distribution of F.W. Fishes

7 *25–31m* **20** *22–37m* **21** *2–17m (Günther)* **23** *26–31m, 34m* **26** *34–37m* **35** *6–10m* **38** *27–37m* **42** *6–26m, 29–31m/30–31u "not I forms", 34–37m* **44** *21–33m, 34–37m* **45** *1–5m, 26–37m* **47** *22–26m* **48** *8–12m, 17–19m, 30–32m* **51** *4–10m* **57** *26–34m* **59** *4–10m, 22u "100 fathom", 32–37m* **61** *26–31m* **62** *25–30m* **65** *4–9m* **66** *27–32m* **76** *3–9m* **79** *10–15m/14u "of Anguilla"* **80** *2–9m* **81** *31–33m* **82** *1–5m* **83** *1–8m* **121** *35–37m* **122** *1–6m, 11–17w* ! Edentata Mastodon Horse Tapir Tertiary! **123** *12–16m* **154** *11–16m* **155** *10–15w*♦ why not separately described then **162** *4–9m* **205** *28–35m* **252** *6–13m/?* **265** *10–11m* **321** *32–33m* **323** *26–31m* **341** *26–30m* **359** *6–7m* **370** *22–29m, 27–30m* **371** *2–5m* **386** *17–21m, 23–27m* **387** *25–30m* **392** *18–23m* **423** *1–6m* **430** *9–11m* **432** *8–13m (Günther)* **465** *2–8m, 11–13m, 25–28m* **466** *1–12m, 28–32m* **467** *1–7m* **484** *3–18m, 34–37m* **487** *16–25m* **496** *12–16m/wt/1–17w* several other such cases of semi-tropical or warm Eocene Antarctic found **500** *6–14m* **503** *1–5m, 9–11m* **523** *26–30m/w*♦ by **524** *33–37m* **525** *1–8m, 12–17m, 23–35m* **526** *1–8m* **537** *12–28m* **546** *5–15m, 16–31m* **548** *19–26m* **549** *11–16m* **550** *31–36m*

WALLACE, Alfred Russel *Island life* London; Macmillan & Co.; 1880 [CUL]
gd, geo

NB ♦ p46; 88 ● Percentage of C. of Lime in Chalk; 68 have long thought so & so other to Günther
166 great amt of Denudation 207 Tylor on Denudation; 251 Means of Distribution; 262 do; 294 do
46 *2–5m/w* Viti New Caledonia New Hebrides **68** *9–15m* **72** *15–19m/?* **88** *7–12m* **89** *21–41m* **166** *29–33m* **172** *29–33m/29u "the water"* **199** *26–38m* **207** *1–5m (Tylor), 35–36m* **208** *19–22m* **250** *28–40m* **251** *21–41m* **262** *12–24m* **294** *3–9m, 24–28m* **295** *5–12m* **345** *2–13m* **403** *19–22m*

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beh, fo, gd, geo, h, mhp, oo, or, sl, sp, sx, tm, v, wd, y

vol. 1 SB1 ❑β
Vol I Wallace
19 23 to 24 Origin Geographical Distribution
♦➻ 29 Mem Institution
49 Pitcher-Plants insects
♦✍ 87 Orang throwing missiles
183 & 184 Alpine Vegetation
222 Distribution
225 do➻
245 –248 453 Birds –transportation of seeds
318 Distribution to 327
418 Megapodius instinct
427 Distribution to end of Chapt
♦➻ 428 Pigeons with racket tail
441 ➻ Vars. in Outline of wings of Butterflies in Celebes.–
♦➻ 468 Kingfisher do do
♦ 433 Barbirusa Defence 435
♦ Penny Encyclop p246 Vol 23
SB2 *over* ♦✍
splendid Eulogia on Rajah
How interesting plants of Borneo○ wd be
Timor splendid case
✍ On Subsidence directly due to pouring out of Lava – <u>Reports Habits</u>

✔✐ Sondiacus
Caterpillars Hairy – JennerO Hair
✏ Style very good
Celebes splendid
Babyrusa organ of defence I presume lower canine not developed
Sevalik miocene fossils –

18 *1–2?, 20–22m* **19** *11–21m* **21** *18–25m* **23** *3–10m/12w* Origin *14–18m* **24** *21–25m* **26** *24–26m, zb* **29** *13–20m* **49** *11–15m* **60** *1–2w/fig.w* Gunther do not believe story **87** *11–17m/13–16"..."/12w/14a¢* **183** *22–26m* **184** *11–16m, 19–25m* **185** *1–3m* **222** *20–26m* **225** *15–20m* **226** *12–21m* **245** *1–3m* **248** *1–6m* **318** *18–26m* **319** *16–26m* **320** *2–12m* **321** *11–25m* **322** *14–23m* **323** *18–21m, 23–24m* **325** *10–16m* **327** *5–8m* **329** *17–23m* **418** *14–21m/w* may it not be argued that large egg necessary to develop young Bird so perfectly? **419** *11–15m* **427** *17–24m* **428** *20–22m* **429** *13–14m, 19–20m* **431** *22–26m* **432** *9–11m, 12–18m* **433** *24–26m* **434** *2a "eyes"/1–4w* with the tips in-curved so that they cd not possibly be used as weapons *7–9m* **435** *7m/wt* probably originally weapons *11–13m/"...", 14–16m/m/w* How about the lower **437** *13–18m* **438** *16–17m* **439** *19–22m* **441** *fig.m* **443** *7–9m, 19–22m* **444** *7–15m* **445** *wt* More probably round – reflects on connection with Africa of Sevalik fossils. *9–15m (Sclater)* **453** *9–11m/10u "crimson mace", 12–14m*

vol. 2 NB *¢¢*
SB1 ❑β
◆∞ p.43 Man – a small colony lose its language and yet impresses its character to certain extent & may increase into large nation.– 49 do
✍ 103 Tropical fruits have all been improved by Selection
141–142 ✍ Distribution – Pigs swimming
◆ 150 Casuarius females sitting alternately ??
◆ 178 & 207 Man
◆ 203 Birds of Paradise seasonal
◆ 252 do Dance
◆ 255 Man 445–453
276 failure of instincts ✍ in Insects boring trees or sticking in holes
◆ male fighting Beetles
290 Distribution
295 Flowers not fine in Tropics
◆ 306 Man beauty
◆ 314 Sexual characters Diptera
◆ 388 Paradise – skim through Chapt.– 399
431 Distrib, 435, 436
SB2 ⟨*over*⟩
◆ you make sometimes feel young again as if I was once again collecting specimens
p150 ask Casuarius✍
I am astonished you ever returned alive
◆ 236 ✔✐ for Western read Eastern
255 Savages males self-ornament – do they care for admiration of women? or of other men, for presumably not exclusively self-admiration ?✐
◆ Distribution
◆ 295 number of insects no need to be conspicuous.
◆ 315 ✔✐ like Elk – do you not mean Moor or fallow Deer 399 ask

43 *14–16m, 19–21m, 22u "Malay|language", wb* if a small colony ● native language ● **48** *18–20u±* **49** *16u "Orang Sirani", 21–23m/u "with|stocks"* **103** *16–24m* **141** *9–15m* **142** *1–9m* **145** *12–16m* **146** *3–13m* **150** *4–6m* **153** *3–11m* **178** *13–17m, 25–26m* **179** *4–5m, 8u "twisted beard", 13–15m* **203** *16–20m* **207** *11–15m* **236** *⇑5c/w¢* **252** *17u "dancing-parties", 21–26m* **253** *8u "are|over", 11u "striped|the", 13u "then overshadowed", 14–15u "emerald|throat"* **255** *16–17m/w* self-vanity **276** *3–13m, 23–26m* **277** *1–6m, 8–11m* **290** *7–23m* **291** *20–23m* **295** *9–15m/7–23w* so many insects no need to be conspicuous **296** *6–14m/7–25w* I think Humboldt remarks Tropical plants not so social **297** *26m* **298** *5–15m* **306** *1–3m* **314** *12–14u↔* **315** *1–3m, 4u "elk"/?, 13–16m/14u "None|any"* **390** *11–12m/12u "feathers|colour", 14u "across|forehead"* **391** *1–2m, 17–18m, 18–19u "effect|moultings", 23–26m/24–25u "assumed|season"* **393** *4–9m* **394** *24–25m* **395** *1–2m* **398** *5–8m, 9–12m* **399** *1–19w*◆ variety of colour *9–22m, 21–22w* I do not see & I wish I did see it the connection between variation having been first a long ago selected & ♣ then appearing at an earlier age than more recently selected variations. I can see, why an increase in the length of feathers, which has to be fully formed & then added to in length by variation & then further modified, shd appear later in life **405** *8u♠, 17–20m/19–20u↔* **406** *5m, 6u "black|colour", 11–12m* **407** *7–12m* **408** *9–12m* **409** *2–4m* **420** *9u "eighteen"* **431** *19–26m* **435** *7–10m* **436** *18–22m* **445** *15–16m* **453** *1–6m/3w* 456 **455** *8–13m*◆ **456** *15–18m* **460** *7–10m/w* like a herd of animals

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WALLACE, TROPICAL NATURE
NB 59 Mimosa
59 *31–32m (Pfeffer)* **60** *4–8m* **61** *6–11m (Bates)*

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WALTERSHAUSEN, W. Sartorius von *Untersuchungen über die Klimate der Gegenwart und der Vorwelt* Haarlem; De Herven Loosjes; 1865 [Down] ℘

WALTHER, Alfred and MOLENDO, Ludwig *Die Laubmoose Oberfrankens* Leipzig; Wilhelm Engelmann; 1868 [CUL]
gd, is, oo, sp, t

NB1 218 Intermingling in range of mosses
224 Even close species of mosses do not live close together; the Struggle for Life, being severest between nearest forms – good!
263 translated to end
265 gives cases against M. Wagner's Isolation

218 *22m* **224** *4–10m/w* close species do not live together **264** *21m, 30–35m* **265** *9–25w* Argues against M Wagner Not result of isolation

WALTHER, Friedrich L. *Der Hund* Giessen; G.F. Heker; n.d. [CUL, pre-B]
beh, br, cs, ds, gd, h, tm, v, wd

NB ✍ This only useful for ancient History of Dogs Q
March 29 1857
Find out what classics translated
Athenaeum London Library
Aristotle; Pliny; Xenophon ◊; Varro Columella; Oppianus; Treviranus
I doubt whether any use
40 Greyhounds do not bark
48 Dogs of ancients ◊
31 Bechstein first remarked about skin between toes
39 Animals of Corsica speckled
I doubt whether any use

4 *31–35m* **5** *6u "Varro"/6–9w* In Athenaeum "Rei Rusticae Scriptora" *7–8m/8u "Columella"* **6** *31–35m* **9** *13m (Linnaeus), 17u "22", 19m (Linnaeus)* **12** *10–12w* ears very variable *21–22m/w* Lungs of swift dogs very ♣ large *33–35m/w* 10–8 nipples latter more rare **16** *7–13w* Crossed with these **20** *37m (Azara)* **21** *33–34m* **23** *7–11m, 14m, 15–17w* 2 dogs in New Zealand *26m, 31m* **26** *23–26m/24u* **28** *18m, 19–20w* Spaniel *33–35w* Carrying Dog **29** *9w* Poodle *17u "Herrmann"* **30** *27m* **31** *2–5w* always slavering mouth *11u↔/9–11w* webbed feet *14u/wτ* **34** ⇑*10w* our Bull Dog **35** *30–32w* Claw on hinder feet **37** *15–16w* Pointer **39** *36–38w* Animals of Corsica oddly speckled **40** *1u "Hühner|Hunde"/wt/1–5w* Men, hounds, hens black on coasts of Guinea! *18–21w* Danish carriage dog *25–28w* Greyhounds do not bark **41** *16–18m/w* Persian greyhound *28u/wτ, 29u "Hasen"/w* like Hare **42** *5–6w* naked dogs *28–30w* terriers **43** *24–30w* Carver says only 1 dog amongst Americans *32u↔* **44** *3–7m/4u "1622"/2–10w* Newfoundland dog not found there in 1622 **46** *30–32w* 2 dogs Chile **48** *2–9m/wt/1–11w* talks of impossibility of recognising dogs of ancients *14–19m/12–20w* doubts whether they could have been kept pure. *22u "400 Jahre", 27–33m/w* 2 kinds of dogs described *28–34m, 34–36m/34u "350"/35u "3–4"* **49** *24u "Melitäischen"/23–25m/w* Pliny mentions quite a little dog *34–35w* & Indian Dog **50** *21u "ex|cane"/25–26?/14–29w* I see that Aristotle ♣ attributed Dogs to crosses with wild animals! whether correctly may be doubted? **51** *17–19m/17u "ersten Jahrhundert", 19–22u♠/w* 12 Dogs *30m/w* 2d century *33–36m/w* many breeds **52** *7m, 9–11m/w* which variety in Dogs *21m, 30–31w* 1 *36w* 2 **53** *1w* 3 *4w* 4 *6w* 5 *8w* 6 *8w* aids in Hawking *10w* 7 *12w* 8 *13w* 9 **55** *10w* 10 *17w* 11 **58** *19w* Charlemagne *23u "Molossus"/w* Bloodhound **60** *16–22m/w* only few hounds in Germany at this period **69** *10–14m* **70** *4–5m, 11–13m, 20–26m/13–27w* long legged & long snouted thin haired dogs in hot countries, short legged thick haired in cold countries

WALTHER, Friedrich L. *Das Rindvieh* Giessen; G.F. Heker; 1817 [CUL, pre-B]
br, cs, f, gd, geo, rd, sx, t, tm, v, wd

NB p.17 p.113 Book; Nothing after p.150; (Very little)♦
SB ❑β
30 Humped cattle with hump much larger in Bull than Cow
31 Horns in Iceland
Bring fruitful offspring with common cattle

3 *16–17m/w* wild nothing known *25–26m, wb* same as Aurock **6** *31–33m/w* Grt humped Ox in Alexanders time **12** *25–27m (Buffon), 31–39m, wb* thinks the Aurocks may have crossed with our cattle. By Buffon they have crossed **15** *29–34m, wb* I presume all these breeds are different but are not here described **16** *18u "Hochbeinig"/17–20w* long-legged with outstanding horns **17** *8–10m, 11–*

12m, 29m, 31–32m/u↔/w See Next Page **18** *18–22m/19–20w*♦, *21–22u "ungemein sind"* **19** *24–25m* **20** *21w* 32 **26** ↕*w* White aurochs or Ladrones three wild Cattle of Scotland mistaken for **29** *wt* (a) Pallas theory that N. America & Europe one united island & wrecks of old land *5–16m/9w* (a) **30** *1u/3u/4u ⟨place-names⟩, 11–13m/5–16w* Oxen a hump, cows very little Breeds with common subherds with a Bump *17–18m/17u "Beiträgen IV", 30u "fruchtbare Junge"/27–32w* lose hump in other climates!! Breed with common cattle *30u±, 33m* **31** *14–16m/w* Hornless in Iceland commoner than Horned *17u±, 20–24w* Mem how different from sheep of Iceland *26–31w* Aelian remarked on herd of hornless cattle *31–32m, wb* in S. America when crossed with hornless, calves no horns *wb* very odd considering rudimentary when contrasted with sheep **54** *25–38m/w* 2 Indian Oxen described one with long mane **55** *4–5m/w* 3d kind **57** *19u "Aegypten"/19–23m/21u "Cameelen"* **61** *3u "50"/4u "Vierzig"/1–6w* Varro 50 Books on Agriculture **66** *4–9m/w* Italy several Breeds in Columellas time.– **73** *14–20w* Romish cattle very different from those of N. Land *22m* **83** *1–6m/w* cattle curious Thuringia **90** *23m* **113** *8m, 9m*

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af, beh, cc, ds, fo, gd, he, hl, ig, in, is, oo, rd, sp, sx, sy, tm, v, wd, y

SB1 ❐ℜ *⟨at end of part 22⟩*
p.32 p.52 p.54 p.66 p.68 p.106 p.111 p.144 p.161 p.187 p.188 p.190 p.202 p.452 XX p.467 463 469
SB2 ❐ℜ *⟨at end of part 22, several sheets⟩*
p.2 All Marsup. out of Australia & N. Guinea belong to sub-genus of Phalangista Cuscus, which is not fd in Australia, but is in New Guines. In N. Guines 7 species in 6 genera
p.3 Talks of ranges,– 1 species ranges from Ambyona to New Ireland! introduced I shd think about 1400 miles from Ambyona to N. Ireland, about same as to Timor

p.3 species nearly allied generally do not inhabit same district
13 Stonesfield marsup. cannot be arranged in any known group of recent marsups.
18 on greater amount of difference in low orders
23 28 31 on relations of Montremata
47 var. or species of Echidna in Tasmania.–
53 slight rumination in Kangaroos
56 Eye-lashes only in diurnal Kangaroos
61 Rodents with Marsupials ♣
87 Kangaroos on Barrow Isd 30 miles off Mainland–
109 Echymis, hairs varying to species in same genus Gradation✍
⟨over⟩
131 <u>var.</u> of Kangaroo in Tasmania
183 Macropus Brunii of N. Guinea approaches in many respects <u>anatomical</u> to the N. guinea genus Dendrologus, a new Guinea genus – cd only be accounted for by descent
194 var. in molar teeth.
204 local vars. from W. Coast
232 Gigantic Diprotodon & Nototherium of Owen between Rat Kangaroo & Wombat
244 Fossil Wombat very close to recent
256♦ 265 certain small teeth varying in species & individuals
277 Cuscus purchased from natives by Lesson
293 302 <u>vars</u> Tasmania
310 Phalangista with skin some way between legs giving character of Petauruses, no habit to explain use
318 Curious analogy to flying squirrels even to form of tail in different realmsO
⟨over⟩
343,4 Rudimental teeth in Tarsipes variable
424 Doubtful Tasmanian Species How much more distant N. Guinea than Tasmania; not then climate comes into play
537 Cuscus chrysorrhos in N. Guinea – list of Marsup. of N. Guinea
538 East & W. Australian districts have only 8/60 in common (compare with N. Guinea & Timor) – S. Australia hardly only few peculiar 9/20 peculiar to Tasmania Thylacinus & a sub-genus peculiar to Tasmania, but both fossil in Australia
⟨over⟩
Rodents beginning at Part xii
32 Fossil Lagomys Northern genus in Corsica & Sardinia
52 Lepus variabilis in N. of Alps, almost in Middle Europe
54 Thinks same species with Irish ♣: It does not appear that L. glacialis

WATERHOUSE

106 p111 marked variations in populations of Hares (161 in Cavy)

141 Brazilian Hare approaches most nearly to N. American Hare – inhabits Bolivia as well as Brazil – & p144 very close to Cave Hare of Brazil, identical except size – Came during glacial period ✍ & so the Antilope

452 When a species has◆ is characterized by maximum development that part is most subject to variation. Q

463 Nepal Porcupine breeds domesticated

467 vars of Java Porcupine, there & in Sumatra & Borneo

477 Porcupine Fernando Po & Sierra Leone

vol. 1, 2 *19–23m* **3** *wt* All caught & solidly native p277 *wt* do. p283 <u>esteemed a great delicacy</u> *5???, 6m/w* Temminck *9a/c "Cavifrons"/w* Orientalis V.p.279 Some make this a distinct section of Genus *12u "seven species", 14u "six distinct", 20–23m, 27–30m (Müller)/28w* when? **4** *6m, 25–31m* **5** *6–8m/!* **6** *24–25m* **10** *28–30m, 31–32m* **11** *1–6m* **12** *8–11w* (wait for explanation) **13** *3–5m, 18–22m* **17** *4–7m, 12–14m, 18–21* **18** *1–3m, 4–5?, 12–19m/14–15?, 16–19m* **20** *1–2m* **21** *25–28m (Owen)* **23** *1–2m* **28** *4–6m* **31** *9–11m* **32** *26–28m* **40** *13–14m* **42** *17–18m* **47** *20–21m, 28–30m* **48** *19–23m* **50** *16–17m* **51** *6–8m* **52** *5–7m* **53** *12–13m* **54** *22–23m* **55** *9–13m, 13–17* **56** *3–5m* **61** *5–7m* **64** *23–24m/w* (a) *wb* I thought Gould said there were different varieties at the two places **69** *8w* 1 *8w* 2 *22u/22u/25u/25u ⟨numbers⟩/23–28w* proportional variation in bredth of teeth *35–37m* **70** *9–11m, 18–20m* **72** *11–14m (Gould)* **74** *30–32m* **77** *1m* **87** *3–5m* **90** *13–15m*◆ **93** *32–33m* **109** *9–12m/w* case of series in same genus *28–31m* **110** *6–9m* **113** *1–2m* **125** *29m/u↔, 32–33m* **126** *32–34m* **131** *8–12m* **135** *30–31m*◆ **138** *28c "ear"/w* tail *32m, wb* same total length but parts vary **148** *9m, 10m, 12m, 13m/10–16w* smaller, yet longer tail, & longer from nose to ear *17m* **150** *11–14m, 22–23m* **155** *20–22m* **158** *3–5m, 6–8m* **159** *25–26m* **160** *29m/29–32w* specimen longer yet tail shorter **162** *30–31m* **163** *36m, wb* ear less in larger specimens **166** *6–8m, 25–28m/23–31w* yet a former species was described as inhabiting rocks **170** *6–7m, 16m/m, 19–27w* similar variations; age may have something to do **172** *30–32m/w* representative? *wb* NW Coast **180** *30m* **181** *9–11x, wb* X Gould has this work in Dutch– will there be any tables of the Mammifers **182** *21–22m* **183** *3–5m, 7–9m, 19–20m, 22–23m* **185** *1–4m, 5–9m, 10–15m, 16–19m* **186** *22–25m* **194** *33–35m* **202** *25–27m* **214** *13–14m, 16–19m* **215** *tab.m* **216** *1–3m, 7–10m* **218** *18–22m* **226** *24–26m (Ogilby)* **232** *30–34m (Owen)* **256** *20–23m* **262** *11m/u "protected | eyelashes"* **265** *11–15m* **267** *8m* **275** *4m, 6–8m (Temminck)* **277** *4–6m* **279** *17m/u "Timor"* **286** *33m* **287** *8–17w* I have often observed all parts do correspond in X size, when a specimen is extra large **290** *32–33m* **291** *4–5m* **293** *6m, 7u "specifically"* **295** *26–27m, 32–33m* **302** *14–15m* **308** *25–27m* **310** *13–15m* **312** *3–18w* there seems no habit to account for skin from sides of body to legs **313** *4m/u "of | the", 8–10m* **318** *15–19m* **323** *9–10m, 30–31m, 35m* **332** *26–27m* **343** *13–18m* **344** *24m* **347** *14u ⟨numbers⟩, 16–18m/m*◆ **355** *2m, 22–23m* **356** *15m, 19–20m* **387** *12m* **403** *1–2w* generic character *3m*◆*/3–4u "The pouch"* **417** *26–28m* **418** *15–19m* **424** *10–13m* **429** *28m/28–29w/wb* species appear nearly all distinct here. V. how many genera **432** *10–14m, 30–32m* **438** *7–9m, 10m/?, 12m* **443** *5–6m (Gould)* **444** *1–2m* **451** *1–4m* **482** *4–6m, 5m, 7m* **484** *2–7m, 3m, 4m* **493** *1–2m* **518** *4–7m* **529** *25–27m* **534** *30–32m* **537** *13–15m, 15–21m, 25–27m* **538** *3–7m,, 8–9m, 13–16m, 18–22m*

vol. 2, 3 *9–10m* **10** *19m* **12** *31u "supra-orbital process"* **13** *1m* **32** *4–6m/4u "Corsica", 15–16m/15u "Sardinia"* **34** *19–38m* **35** *14u "supra-orbital", 27–32m* **36** *5u "square | middle", 7–11m* **39** *16–17u "ears | point"* **41** *22–23m/23u "black | above", 25u "brownish colour"* **43** *11–12m*◆ **45** *10u "with | externally", 13u "The | along"* **46** *6–7u "with | apex", 12u "tail | above"* **48** *26u "with | apex", 34–35u "black | margin"* **49** *27–28u "apical | black"* **51** *34u "Winter fur", 35–36u "upper | yellow"* **52** *4–6m, 10–11u "tail | surface", 30u↔* **53** *1u "and | ears", 4u "with | ears"* **54** *4u "and | above", 16–29m/22u "surface | greyish"* **55** *zt, tab.m* **57** *8u "with | black", 10u "tinted | surface"* **58** *6–8m* **60** *11u "dense fur", 12u "surface | colour", 24u "upper | black"* **64** *14u "tail | above"* **66** *wt/1–6m/w* The argument against variation must be extended to all these cases *5–6m, 10–12m* **67** *12–13u "which | black", 32–34m* **68** *4–9m, 11–12m* **70** *23–24u "externally | extended"* **72** *20u "ears | externally", 23u "pencilled | above"* **74** *30–31u "with | externally", 32u "tail | above"* **82** *1–2u↔* **83** *10m, 25–27u±* **84** *20–21u "tail | black"* **86** *7–8u "margined | black"* **87** *35u "externally | patch"* **93** *11–13m* **96** *34u "are | and"* **97** *7u "on | colour"* **104** *20–25m* **105** *7u "soles | ears"* **106** *3u/5u/5u/9u/9u ⟨numbers⟩* **110** *13–17m* **111** *21u/25m/u ⟨numbers⟩* **116** *18–22m* **144** *21–26m* **177** *10u "3"/w* In fig. 12 **187** *tab.w* proportions different **188** *10–20m (Rengger), 17–18m* **189** *11–19m, 26–28m, 29–33m (Rengger)* **190** *31–34m* **191** *9–12m, 14u "previously domesticated"* **192** *15–18m, 27–33m*

(Rengger) **202** *4–10m* **203** *8–10m*◆ **217** *10m, 18u "10"* **296** *25w*◆ where is it found. **452** *9–11Q 17–19m, 19–24m/Q* **453** *5w* ● **463** *30–32m* **467** *8–17m* **469** *3–7m (Gray)* **477** *5m*

WATERHOUSE, George Robert *The naturalist's library; Mammalia, vol. 11: Marsupialia* Edinburgh; W.H. Lizards; 1841 [CUL, I]
af, sp, tm, v

NB 67,8; 81; 84; 86 to 105
from 200 to 251 only skimmed nothing
253; 263; 266; 284; 306; 313
SB ❑β
68 Owen on marsupial Bones in Reptiles & arteries in Marsupials like them
84 Analogous var in stripe in other species of Opossum Q

49 *6–8m, 14w* New Ireland *27m* **50** *8–10m* **67** *23–26m* **68** *16–18m (Owen)* **81** *15–22m* **84** *11–15m/13–14Q 28w* see 86 *29–30m/Q* **86** *3–5m/Q* **89** *29m* **96** *1–3m* **105** *15–17m* **135** *26–27m (Gould)* **253** *3–4m* **263** *19–20m* **266** *23–25m* **267** *19–21m* **284** *wt* I see some squirrels in Zoolog. Gardens have flattened tails like the flying squirrels *8m* **306** *6–7m* **313** *19–32m* **314** *13–14m, 28–30m* **323** *6–8m*

WATERTON, Charles *Essays on natural history* London; Longman, Orme, Brown, Green & Longman; 1838 [Down, S of Matthews]

WATSON, Hewett Cottrell *Cybele britannica* 4 vols. and part 1 of supplement; London; Longman & Co.; 1847–60 [CUL, I]
cr, gd, geo, no, phy, sh, sp, t, tm

vol. 4 NB 397 misprint; 123 introduced Plants
SB ◆
Forbes I quite agree Alpine & recent of glacial sea-shells only good parts – You always write with such vigour & spirit that I am carried along with you over dryest points. – i.e. thanks○
Reconnectibility◆
Value of Groups very good; I was so glad to see you praise Bentham's paper.–
62 curious coincidence in idea with what I have written
I am glad you praise Alp. D.C.
SB2 p16
175 It would be easy by this Table to calculate distribution by the 112 countries of census in larger & smaller genera. Take one of old lists with names. In order to see whether the most diffused species are the species of larger genera (see p.438)
Pages marked not abstracted
¢¢

16 *12–17m, 20–21m* **19** *13–19m* **20** *19–21m* **25** *5–11m, 19–24m* **31** *30–34m* **32** *18–20m/?* **33** *1–7m* **40** *29–32m* **42** *3–13m* **44** *12–14m* **45** *1–3m* **46** *8–13m, 13–15m* **47** *6–10m, 16–18m* **49** *1–2m, 7m* **62** *2–11m* **78** *2–12m/4–7w* American plants **80** *11–19m* **105** *26–32m* **123** *3–7m, 7–9m* **156** *18–22m* **159** *11–13m* **160** *22–25m* **171** *2–4m* **175** *2w* p.231 *42w* 1 *9w* 4 *10w* 131 *12w* 2 *13w* 100 *14w* 1 *16w* 1 **234** *2u "38 sub-provinces"/w* counties **278** *20–30m (Bentham, Babington), 29u "to 320"* **279** *23–27m, 24–30m, 28–29m* **280** *32–38m/36u "partly fallacious"* **285** *zb* **357** *1–8m* **359** *1w* No of species *2w* World **368** *27–39m* **387** *18–34m (Bentham)* **388** *4–22m, 20–25m* **389** *5–7w* Doubtful British species **397** *1?* **399** *13–18m, 27–32m/31–32u "relative | decreases"* **401** *30–34m* **403** *29–34m/31–32u↔/34u "The | orders"* **404** *10–13m (Lindley), 21–27m, 28–30m* **405** *4–6m, 14–20m* **412** *21–24m, 25–30m* **413** *25–33m* **415** *20–22w* & rate of growth *25–31m* **417** *6m, 30–32m* **423** *7–20m, 28–29m* **424** *5–10m* **426** *21–28m* **435** *17–23m* **436** *1–6m, 28–34m* **437** *19–25m* **438** *24–28m* **440** *7–10m* **461** *21–25m, 30–33m* **462** *1–4m, 5–8m* **463** *21–25m/21–23m/"...", 27–29"..."* **464** *21–31m* **465** *12–17m, 18–23m, 24–27m, 27–30m* **466** *5–8m* **468** *15w*● **470** *30–32m* **474** *9–20m, 22–26m* **475** *5–11m, 13–15m, 19–21m, 27–34m* **476** *16–19m* **486** *2m*→ **487** *3w* 1 *4w* 2 *5w* 8 *7w* 3 *8w* 13 *9w* 19 *10w* 4 *11w* 6 *12w* 26 *21z* **519** *15–31m* **525** *30–34m (Lyell)* **526** *8–9m (Lyell), 22–23m*

supplement NB1 p32 On infinite multiplication of species
p118 Definition of species & groups & Babingtons Remark that species cannot be defined
NB2 The 2 lists, which have the same species repeated from N. & S. Britain, must be worked when I consider commonness & size of genera – But there will be difficulties, as I believe the universal ranges are omitted, & some of new species inserted. I must well consider what to do–

116 *19–27m (Babington)* **117** *5–10m (Babington)* **118** *10–13m, 20–23m (Linnaeus)*

WATSON, Hewett Cottrell *Compendium of the Cybele britannica* 3 parts; London; Thames Ditton; 1868–70 [CUL]
ex, gd, no, oo, or, r, sl, sp, t

Part 1 NB 13 22 37 38 42 50 52 54 57 60 75 (p65 Formulas explained)
p69 Littoral plants
◆ 1836 Pamphlet wonderfully ♣ striking excellent sketch of my views
◆ 54 Misnomer Origin of species in same way that a pug dog owes its origin to man
◆ 54 I quite agree no evidence except no explanO shown
◆ I have discussed indefinite increase in number of specific forms in 3d Edit p.141
SB ❑β ⚯
p.13 on manner in which each species dies out in horizontal range.
p.22 – trespassers are more usual downwards than upwards on Heights.
37–41 Terms for aggregates of super sp.
57 On convergence of forms
60. Definition of Naturalised Plants.
75 on Flora of Greenland v. Hooker.–

2 ⇑*15–10m* **13** ⇑*14–6m* **22** ⇑*13–8m* **37** *10–12m,* ⇑*1*→ **38** *6–18m,* ⇑*14–1m/w* Ist Edit of Handbook *wb* see p.41 **41** *1–5m,* ⇑*1*→ **42** ⇑*11–5m* **43** *1–3m* **49** ⇑*15–12m*◆ **50** ⇑*4–1m* **52** ⇑*10–5m* **54** *1–4m,* ⇑*8–4m* **55** ⇑*18–9m/w* I have discussed this 3d Edit p141 **57** *6–15m* **60** ⇑*14–6m* **65** ⇑*8–1m* **69** ⇑*12–1m* **75** *7–17m,* ⇑*12–6m,* ⇑*1*→ **76** *1–8m* **92** *"55"–"Zones".m, "56"–"Zones".m* **96** *"72"–"Zones".m, "Littoral".m, "72*"–"Zones".m* **103** *"110".m, "111".m, "113".m* **105** *"124".m* **107** *"131".m* **111** *"142".m* **120** *"174".m* **128** *"210".m* **132** *"228*".m* **142** *"274".m* **154** *"311".m* **167** *"361".m* **185** *"444".m*✎ **186** *"448".m* **187** *"450".m* **192** *"471*".m* **193** *"476".m* **194** *"478".m*

Part 2 NB 225
225 *"624".m* **229** *"641".m* **233** *"657".m* **235** *"664*".m* **248** *"724*".m ⟨all three⟩* **250** *"731".m* **266** *"794".m* **281** *"858".m* **288** *"894".m* **289** *"897".m, "898".m, "899".m* **290** *"900".m* **291** *"905".m* **292** *"911".m* **294** *"918".m, "919".m* **295** *"920".m, "921".m* **296** *"924".m, "925".m, "926".m* **297** *"927".m, "928".m, "929".m, "930".m* **300** *"940".m, "940*".m* **304** *"954".m* **306** *"961".m* **307** *"969".m, "970".m* **335** *"1096".m* **340** *"1115".m* **346** *"1135".m, "1137".m, "1137*".m* **351** *"1153".m* **352** *"1154".m, "1155".m* **353** *"1160b".m* **359** *"1183".m, "1184b".m* **360** *"1188".m* **361** *"1190".m* **365** *"1208".m* **368** "1218".m, "1217".m **372** *"1235".m* **380** *"1263".m, "1264".m* **385** *"1285".m* **387** *"1293".m* **394** *"1323".m/w* all but 1 of *"1324".m, "1324*".m* **395** *"1325".m, "1327".m* **399** *"1340".m* **404** *"1362".m* **405** *"1365".m* **406** *"1369".m, "1371".m, wb* End **413** *"1397".m*

Part 3 NB O/
℘

WATSON, Hewett Cottrell *The geographical distribution of British plants* 3rd edn, part 1; London; printed for the author; 1843 [Down]
℘

WATSON, Thomas *Lectures on the principles and practice of physic* 2 vols.; London; John B. Parker & Son; 1857 [Botany School]

WEBB, Henry *Dogs* London; Dean & Co.; 1876 [Down]

WEBER, D.A. *Der Taubenfreund* 2. Auflage; Leipzig; G. Basse; 1850 [CUL]
beh, br, cs, f, fg, hy, oo, v, wd, y

SB ❑β
41 Fancy Pigeons must be taught to <u>field</u>
42 The more noble pigeons keep separate from others
43 Some crosses <u>Q</u>
6 *17–20w* 12 feathers in tail normal *22w* (a) *wb* do not tread on sole **13** *5–6w* Fantail *26–27w* Turbits or Owls *32–34w* seldom more than one young *36w* Caporetin **14** *5w* Powter *22–23w* Turkish with curved Beak *26–33m/28m/29u "Pagadette", 30–34w* will breed together Carrier *39–41w* Runt Spanish **15** *1–5w* Romish Runt, like Spanish *9–15w* Barb (allied to Turbits) can cross with own & Fantails *13–16m/14u "aber* | *unbrauchbar"/w* (a) *19w* Tumbler *26w* Trumpeter *31–38w* Moon Pigeons so called for great fertility *34w* (b) *wb* (a) Barb & Fantail have useless eggs *wb* (b) This new kind to me **16** *wt/1–7w* M Brent says a high bred swallow.– is mostly meant by this But the description is applicable to short-footed Tumbler – Riedel gives same account. copied from Bechstein Brent calls it a Magpie Tumbler but possibly not pure.– *4w* (a) *12–15w* shell-tuft behind head *19–21w* Swallow Pigeon *27–32w* ● Turn like Tumblers *36–41w* Stripe from head along body *wb* a Carmelite apparently most like almond Tumbler in shape, so low as to walk nearly on Belly. **17** *14–17m, 32m* **28** *12–18w* Snuff to destroy insects Powdered quicklime *20u/wτ, 36m* **30** *26m, 35–37m/w* (a) *wb* some think Pigeons pair after colour & I think White Trumpeter took first to White Fan-tail **32** *wt* House pigeons lay oftener than Field Pigeons **35** *7m, 7–9w* 4 to 6 months for the pairing *27m* **36** *5–7m, 5–11w* choose for purpose – thin, reared in spring *22–24m/w* Fertility of field Pigeons lasts longer **41** *wt*

(a) must not be hybrids, as their eggs are infertile though Birds themselves Bigger *10w* (a) *32–34m, wb* The house or fancy Pigeons (with few exceptions) will not go to field to feed. Much truth to learn there **42** *34–38m, wb* the more noble pigeons keep separate from others.– **43** *7–15w* Fantail & Turbit Turbit & Caporetin Carrier & Runt Runt & Carrier

WEDDELL, H.A. *Voyage dans le nord de la Bolivie* Paris; P. Bertrand; 1853 [CUL]

WEDGWOOD, Hensleigh *On the origin of language* London; N. Trübner & Co.; 1866 [CUL, S]
beh, h, hl, pat, t, v

NB 2♦; 14♦; 61 CD fear like cold; 63 astonishment open mouth; 75 disgust spitting good; 76 pride – good on hard breathing in anger; 79 to pout; 91 Origin of no. Who is Charma; 139 Lubbock; ♦ No Explanation of abbrev: Chapter on top of Page.–

2 *17u "a generation"/w* generations &c **7** *wt* N.B. Savages of T. del Fuego power of imitation & repeating words & so Australians *wt/1–26w/wb* or like lowest savage. But is it not possible that Man's intellectual power was lower before improved by use of language *16–17u "to|ourselves"* **10** *7–26w/wb* would you call senseless gabble of Idiot instinctive?? Instinctive scream, when attacked would blend into shout for assistance *7?/u "instinctively"* **14** *6?/u "instinctively"* **41** *6–8m/w* p.45 **45** *16–17m* **61** *5–7m* **63** *18–20m* **75** *11–14m* **76** *9–17m/14–15u "swelling|pride"* **78** *25–26m* **79** *1–3m* **83** *13–17m/?* **139** *1–12m* **154** *12m/u "there"*

WEDGWOOD, Hensleigh *On the development of the understanding* London; Taylor & Walton; 1848 [CUL]
beh, h, t, v

NB p126–133.–
126 *22–27m, wb* The dog is social & man is the leader of the troupe **127** *19–24m, wb* will not apply to savages, comes in, but not the ♣ original cause **128** *25–27m* **131** *8–11m* **133** *12–18m*

WEDGWOOD, Hensleigh *A dictionary of English etymology – On the origin of language* 2nd edn; London; Trübner & Co.; 1872 [CUL, S]
beh

NB1 37 Shudder, cold, disgust♦ Horror; xliv disgust, spitting
Mr W Hensleigh ♣
Ugly Rage; from state mind
NB2 xliv♦; Smacking♦
xxxvii *10–27m, 17–19m* **xlv** *37–43m*

WEINLAND, David F. *Über die in Meteoriten entdeckter Thierreste* Esslingen; G. Fröhner; 1882 [Down, I]

WEISBACH, A. *Reise der Österreichischen Fregatte Novara um die Erde in den Jahren 1857, 1858, 1859: Anthropologischer Theil, 2. Abtheilung, "Körpermessungen"* by K. Scherzer and Eduard Schwarz; Wien; K.K. Hof und Staatsdurckerei; 1867 [CUL]
af, h, ss, sx, tm, v

NB 265 Feet of Chinese women
270 Negro does not approach Orang
SB p.218; 231 ✍ width of mouth an Orang character; 232; 234; 236; 239; 243 –245✍ 265; 269 sexual selection; 270

title page *author.u, title.u*
℘
216 *11–15m, 17u "Unterschied|beiden", 18u "65 Millim", 20–23m/20u "218|grösste"* **218** *fig.wτ, 3–5m/3–14w*♦ Height of men more variable than women & before shown that the difference between sexes differs in different races. **231** *7–11m/w* width of mouth Orang character **232** *15–17m/15u "Weibern|nicht"* **233** *28m* **234** *4m/w* Back-bone **236** *27–29u "dem Orang"/w* circumference size♦ of thorax *36–39u±* **237** *1m* **239** *23–25m/23u "ändert|Völkern"/24u "viel|Weibern"/36–41w* In many points proportions of men & women different. **243** *19–22m* **245** *3m, 39–44m* **247** *12–14m* **252** *11–16m* **265** *14–16m/w* slenderest feet round instep *34–37m/35u "unter|kleinsten"* **267** *12–14m* **269** *6u "wovon|Jochbreite"/4–7m/4–12w* Bears ♣ on sexual selection on greater variability of male. **270** *wt/1–4m/w* no one race in all parts nearer Orang *23–26m/24w* Translate *wb* It seems that negros do not approach to Orangs in length of Arms, – ♣ for his legs are likewise long.

WEISMANN, August *Beiträge zur Naturgeschichte der Daphnoiden* 2 vols.; Leipzig; W. Engelmann; 1879 [CUL, I, S]
em, fg, phy, sh

vol. 1 NB p149 in Part III – he shows that summer eggs are nourished by a fluid secreted from the shell-cavity & are not in more water

WEISMANN, DAPHNOIDEN
69 *19–34m* **70** *1–3m*
℘
149 *20–27m* **151** *11–17m, 24m*

WEISMANN, August *Studien zur Descendenz-Theorie. I.* Leipzig; Engelmann; 1875 [CUL]
cc, ds, em, fo, he, phy, sl, sp, ta, tm, v, y

2 ⇑*10–5m/w* slight season difference ♣ more common **4** *1–15w* The caterpillars differ but feed on same food & are all mingled together ⇑*7–4m/*⇑*15–1w* The differently coloured caterpillars produce the same form of Butterfly **5** *1–5w* 2 colours not adaptation to conditions **6** ⇑*20–12w* under sides of wings differ very little– ⇑*7u "direkten"*,⇑*3–2u "Temperatur | Entwicklungsdauer"*, ⇑*6–1w* Dimorphism due to direct effect of conditions **7** *7m* **8** *wt* Temp. during pupation affects colour of Butterflies. by experiments **9** *1–15w* Temperature did not make a complete transformation **12** *6–7m/u*↔ **14** *1–8w* Summer form is a newly acquired form, & cold causes avitism & return to pristine winter forms **15** ⇑*12m* **16** *10–15m/1–15w* effects of climate cumulative like a poison ⇑*15–10w* bears on climatal variations, which are slow. **23** *1–15m/w* Explains Marcellus & Papilio on same principles but reversion easier ⇑*7m* **27** ↕*w* Thinks great heat will cause atavism of the Porima-Vanessa as well as cold *wb*⊶ over **28** ↕*w* Thinks shaking causes reversion – It comes to what I said, anything which disturbs the organisation. **29** *13m* **30** *11m,* ⇑*15–5w* The so called alpine & arctic var. is the parent form. **31** ⇑*10–5w* Winter-form much less variable than summer form **33** *11–20m/w* if the same species thus split we must expect it in distinct forms ⇑*6–1m/w* distinguishes climate & local variations *wb* These cases may be compared with the Polar-Bear always white & Ermine white only in winter– **34** *15–20w* Thinks this a new definition of Climatal variations (applies to Birds in U. States.) **35** *8–10m, 9u "var. Bryoniae"/w* a climatal var. & season dimorphic ⇑*15–13u*± **37** ⇑*9–3m*♦ **38** *5–10m/3–15w* 1st question to decide whether change of climate acts by accelerating or delaying period of ♣ development. Birds in U. States answer this.– **39** *15–17m/w* the result he concludes of higher temp **40** *1–4m, wt* The change of colour & males depends on Nature of organism & not on the warmth **42** *19m* **43** *2–15m/w* argues that nature of organism far more important than the exciting cause *11u*↔, *17–23m/w* quotes me to above effect ⇑*8u "im | schwarz"*, ⇑*7u "im | schwärzer"*, ⇑*5–1m/*⇑*8–1w* But in Birds the nature of change seems more alike in many species– **44** ⇑*12–8m/m/w* Warmth has affected one sex more than the other, so with Birds in U. States. see last Edit. of Descent. **45** *1–4m/x,* ⇑*10–7m* **46** ⇑*6–1m/w* Caterpillars of season – dimorphic alike **47** ⇑*4–2m/w* inheritance of corresponding sexual generation **48** *6–12m/w* New law of inheritance, well-known in asexual generation ⇑*20u "cyclische Vererbung"*, ⇑*16m,* ⇑*12–11m/u*↔ **49** ⇑*20–14m/w* climatal vars., but no season dimorphic vars: exist **56** ⇑*6–1m* **59** *1–3m/wt* I think he means that sexual generation has been lost & is parthenogenetic for intermediate generations **69** *wt* A Crust.○ with summer & winter eggs the latter alone undergo a regular metamorphosis *1–10m,* ⇑*14–10m/w* We see here a passage from metamorph to none ⇑*8–3m/w* think it direct result of climate??? **70** *4m,* ⇑*10–3m/w* Divides cases, as I mentioned, into whether or not, the embryology is different **71** *3m* **73** ⇑*17–14m/*⇑*6–4m/w* as **74** ⇑*12–8m* **75** *1–4m* **77** *12m* **78** *7–9m/8–9u "die | Variabilität", 10–11m, 16–17u*↔*/w* applies to this particular case ⇑*12–9m* **79** ⇑*13–8m/w* This is same in Jaeger ⇑*7–3m/w* allows doubts about Hilgendorf **80** *3–15m/w* His theory of isolation referred to ♣ Because variation not quite identical in 2 stations in relative number. **81** ⇑*8–1m/w* All variation due to changed conditions, but does not directly depend on nature of conditions. **82** *13–16m/w* each species has different history & so is differently acted on by conditions differently from other sp. ⇑*4m* **83** *1m,* ⇑*10–9u "gerichteten | Askenasy's"* **84** *3–14m, 14–20m,* ⇑*11–10u "sie | Reize"*
Plates *figs 1, 5, 10, 11, 12, 13, 16, 17: w*♠ *(and whether summer or winter form)*

WEISMANN, August *Studien zur Descendenz-Theorie. II. Über die letzen Ursachen der Transmutationen* Leipzig; W. Engelmann; 1876 [CUL, I]
ad, ds, em, he, tm, v

NB1 All book marked
p.55 56
In first part shows use of coloured stripes & ocelli of caterpillars.– In 2d & very important part – shows that that caterpillars, pupas & imagos all vary independently – & that
when one stage varies more or differently in 2 groups the difference always stands in relation to conditions to which stage

subjected – Flies – & 2 groups of Hymenoptera best cases.–
good evidence of Axotl being reversion
NB2 68; ♦ 72 for Letter
all marked wonderful book 277 last mark

xiv *5m* **55** *24–27m* **56** *10–16m* **68** *14–15m, 28–32m/23–32w* I have said do not appear in young **69** *12–17w* stages of ammonite like stages of same caterpillar *33–38w* thinks not selection He & I inheritance **72** *wt/1–18w* Does not allude to rule of inheritance at corresponding ages, but after earlier But why I know not *27m/u "Bildungsgesetze"* **73** *1–3m* **79** *2–13m, 25–29m* **80** *12–14m* **81** *13m* **85** *29–34m* **86** *wt* very unsatisfactory on some ancestor *2?* **87** *32m* **89** *14m, 28–32m* **92** *1–4m* **94** *3m* **98** *5m* **101** *10–19m/11–13w* Effects of eye-spots *29m* **103** *16–29m* **106** *3m* **116** *6m* **120** *18m* **142** *18–22m/14–21w* If developed according to phyletic instinct Kräft **149** *5–9m, 15–17m* **150** *34–37m/34u "drei | einen"* **151** *1–4m, 6–8m, 10–12m, 21–24m, 29–30m* **152** *1–4m* **153** *13m, 14–23m/23–37u±* **154** *14–16m/11–19w* i.e. caterpillar or XX imagos of allied species constant or variable **155** *14–15m, 28–30m* **157** *5m* **159** *4–10m, 37–38m* **160** *1–4m, 9–11m* **161** *30–32m* **165** *20m* **167** *13–23m, 25–28m, 29–32m* **170** *18–20m/17–22w* no characters in common of larvae of Butterflies **171** *5–7m* **173** *32m* **176** *3–8m/5–6u "in | stehen"* **177** *22m* **182** *9–11m/10u↔, 14–15u↔* **183** *29–30u "die | nicht"* **184** *7m, 17–20m, 17u "blos", 18u "Raupen varietäten", 21–25m* **185** *9–14m, 34–38m* **187** *12m* **188** *wt/1–6m/w* which determines greater variability of one stage than other *24–28m* **191** *21–37m/22–27w* All this deserves full consideration *36–38m* **192** *33–38m* **198** *20m* **200** *22–30m* **201** *26–28m* **203** *4–15m, 20m, 22–30m* **209** *6m* **210** *11–15m, 12–26m, 15–26m, 28–38m* **212** *12–18m* **214** *6–13m* **216** *8–24m* **219** *11–20m, 36m* **220** *1–5m, 18–20u "so | aufgeben"* **221** *26–30m* **223** *32–38m* **224** *7–24m* **225** *3–9m* **227** *wt* I have read this essay before except the appendix p.273 **273** *22–26m, 34–36m, 37u "verwerthbar | muss"* **274** *17–20m, 21–24m* **277** *26–30m* **280** *15m*

WEISMANN, August *Studies in the theory of descent* trans. R. Meldola; London; Sampson Low, Marston, Searle & Rivington; 1880–82 [Down]

part 1 NB 101–107
106 *12–30m* **107** *1–30m* **109** *14–25m*

WEISMANN, August *Über den Einfluss der Isolirung auf die Artbildung* Leipzig; W. Engelmann; 1872 [CUL, I]

beh, cc, cs, ds, em, fg, fo, gd, geo, ig, in, is, mg, oo, phy, sl, sp, ss, sx, tm, v

SB1 ❑ℜ
Weismann Einfluss der Isolirung
p8 p12 p41 on the Hilgendorf case of Planorbis – periods of variability succeeded by constancy – (Mem. Forbes case in Purbeck Birds) p.137 good arguments against M. Wagner
p.20♦ 42 on manner in which these forms of Planorbis become constant.
p.45 In a variable colonist to remain constant many individuals must immigrate
47 about drying of eggs of Apus & revival
48 Isolation by itself does nothing
51 Periods of variability long, yet shorter than those of constancy
52 My argument M.S. against periods of variability
p.54 Lays greatest stress on difference in results when a variable or constant species is a Colonist
p.55 Protective resemblance of butterflies
65 case of constant butterflies in separated areas during Glacial period.–
⟨*over*⟩ p.67 p.74 He calls it amixie the non-crossing & accounts for very local forms by the same proportion of variation not occurring in one stocked by very few individuals – I shd think slightly different conditions wd likewise influence the propagation of varieties.– The difference these gained wd never exceed the amt of individual differences in species in question
p.76 cases of extremely slight differences in different countries of Lepidoptera – many♦ most species do not present any local vars.
p.85 Effects of crossing slight & slow except in locomotive organisms
95 97 102 Does he not ignore effects of conditions long continued – p102 good argument against.
107 local form of butterflies have never spread from Corsica to mainland of Italy
106 Cause of richness of endemic forms on islands in part due to fact when once formed not spreading to other areas

8 *5–17m* **12** *21–26m/19–20w* see to Forbes case **14** *18m* **15** *6–30w* argues wonderfully well about these species & their distinctness **16** *17–19m (Hilgendorf)* **18** *23m* **20** *11–21w* differently coloured vars of Caterpillars **21** *14–15m* **22** *12m (CD)* **26** *31m* **32** *3m* **40** *28–31m* **41** *1–6m/w* slowness of change *28–31m/26–30w* most important *31–33m* **42** *wt/1–19w* different individuals vary in different ways & all lead to the same end – like what I have said of Giraffe in the Descent. *1–2m, 13–19m, 20m, 22–23u "vollzieht|werden", 32–34u "sondern|aus"* **43** *2–3u "sondern|oxystomus", 5–7u "Verschmelzung|kommen", 10–11u "durch|Individuen", 26–28m/27w* (a) *wb* constancy lost when all individuals fail to cross **45** *12u "sehr|Individuen"/10–16w* thinks cause of constancy lies in colonies consisting of several individuals *28–32m/30w* (a) *wb* (a) Thinks individual differences overstated (?) **47** *30–32m (Siebold)/30w* (a) *33u↔, wb* about the drying of eggs of Apus **48** *18–28w* Islands where some forms changed & some identical shows isolation by itself does nothing *27–28u↔* **49** *18m, 29–31m* **51** *wt* a species remains constant till some cause induces variation– *3–8m/5w* (a) *18–27m/w* Evidence of Periods of variation long, yet shorter than those of constancy *31–34m (Hilgerdorf)* **52** *wt* A difference in result whether a variable or constant form in the colonist is new *24m/4–26w* The species which remain for long periods & in many countries (& whole genera) variable are opposed to periods of variability **54** *wt/1–3w* i.e. without selection or any new tendency to variation, supposing the new arriver to be already variable– *1–8m, 32–34m, wb* says very difficult to prove what are purely morphological characters **55** *26–28m, 27–32m, wb* cases like Kallima **56** *31m* **58** *wt/1–9w* asserts the dark colour of wings of female Blue Butterflies is certainly a protection *1–9m, 9z, 9–10u↔, 11m, 11–12m, 11–24w* I think because his wings have been coloured blue the female has not this habit because her wings are brown **60** *16–19m/19u "Satyriden", 27m* **62** *wt/1–30w* He considers Secondary Sexual characters as morphological or indifferent, but I doubt, for so would be primary sexual characters *34m* **63** *2u "Vanessa|Sardinien"/2–5w* case not due to his scheme *5–15m, 13–22m* **64** *26u♠/29–35m/w* trace of mark in V. ichnusa **65** *9–14m, 15–17m* **67** *11–15m, 30u "Amixie", 31–32u↔* **70** *5–9m/9m/10–12m/4–17w* he assumes taste of female wd remain constant.wd be affected by momentary colour – We have cases of local vars of Birds in which males alone differ. *20–27m/24–33w* have I not case of male Moths like female in Shetland islands **72** *8–14m/w* 2 Sulphur-Butterflies with female alike **74** *wt/1–25w* on his peculiar view isolation cannot make a greater amount of difference than the extreme varieties of parent species – but may be aided by S. Selection *1m, 5–7m* **75** *12–17m, 13w* conclusive **76** *17–26m, 6–25w* very slight differences in different countries **77** *1–12w* Cases of absolute identity ever since glacial period *11–16m, 12–30w/wb* the greater no of species of Butterflies do not present local vars. **82** *1–2m* **85** *4–26w* On effect of crossing very slow, in slowly moving organism – true – he ignores greater vigour of crossed offspring **91** *24m* **95** *16–22m/wt/1–21w* But how does he know that the black female not due to directly external agencies **96** *21–29m* **97** *wt* I think so if cause of variation preponderant *5–7m, 8u↔/w* (a) *9m* **100** *8m* **102** *wt/1–28w* important that the many local vars of V. cardui in America due to S. Selection because such are not found in other parts of world & the same argument applicable to direct action of conditions. **103** *11–13m/12–13u "als|Stammart"* **104** *2–7m* **105** *25m* **106** *26–29m/w* in islds **107** *19u "Corsica|Sardinien", 24–29m/25u "italienischen"*

WEISMANN, August *Über die Berechtigung der Darwin'schen Theorie* Leipzig; W. Engelmann; 1868 [CUL, I]
cc, ch, cs, dg, gd, he, is, mm, oo, sl, sx, t, tm, v

NB ♦ Causes & Law of Variation most important
All marked
p26 Nägeli to 30
11 *21m* **12** *5–9m/wt/1–9w* Caterpillars coloured alike Moths different **13** *10m* **16** *15–22m, 32–33m* **17** *21m, 32–34m* **18** *6u "Ei|Larvenhaut", 26–28m/29–31m/u↔/23–31w* Why on doctrine of Plan do the shoulder girdle & pelvis fail in snakes *32–33m (Dohrn)* **22** *20m* **24** *19m* **26** *8–12m, 8m, 14–16m/w* degraded organisms *23–33w* trifling characters constant – External influences kept constant by crossing *24–29m, 30m* **27** *3–4m/19–29m/1–33w* I think this means that "morphological" characters are the results of what I call the definite action of conditions – I do not feel quite satisfied with this – free intercrossing cd perhaps keep ♣ the characters, which are not in use, free from fluctuations.– **28** *21–22m/19–23w* a cat will vary differently from a dog. *23–26m/wb* So the Laws of variation (as well as inheritance) will prevent the same form being produced by two distinct forms– **29** *wt/1–5w* In Variation under Dom. I have been strong on N◗ of species ● *6–8m/7u "Variationsqualität"/w* good *16–20m*♦ **30** *wt/1–17m/w* This is justly directed against what I have vaguely said of indefinite variability – in all cases the variability, within a large circuit, is definite & thus certainly

overrides the power of selection **32** *23–26m/1–26w* my objection that an isolated form could cross at first **33** *wt* (a) Truly remarks that of offspring, crossed with parents, some wd inherit the new variation & some wd not, but the latter by natural selection wd be be the less favoured *3–7m/5w* (a) *28–34m (M. Wagner), wb* Thinks much of Sexual Selection **34** *28–31m (Hilgendorf)* **36** *3–6m/5–7u "Jedem | grün"/3–11w* 2 or 3 forms of Caterpillars I shd have thought more variability *10u♠, 11–12u↔, 18–22m/w* isolation by itself does not cause change **39** *8–16m/w* Plants & insects later developed on Mountains & so do not cross with same species on the plains *18u♠, 19–20u "die | Stynge"*

WELLS, William Charles *Two essays* London and Edinburgh; Archibald Constable; 1818 [Down, pre-B, ED]

WESTWOOD, John Obadiah *An introduction to the modern classification of insects* 2 vols; London; Longman, Orme, Brown, Green & Longmans; 1839–40 [CUL, S]
ad, af, beh, ci, em, f, fg, gd, ig, in, mm, mn, no, oo, or, rd, sl, sp, sx, sy, ta, tm, v

vol. 1 NB Change of Habits in House Crickets
SB1
♦✍ 427 Mantis fight
437 Saltatoria <u>3 Families</u>
439 Crickets
440–442 males chirping noise
445 fight♦✍ & attract females
450 Gryllidae
♦ 452 Both se
453 both sexes
457 Locust act by Femora
– Pneumora anoth case
♦ The use of Limb perhaps stated
?? ☞ ✍ (p447. Male of one cricket veil. use not stated)
SWestwood Vol. 2 Secondary sexual Ch. Orthoptera
SB2 ❑β
104 Variation in Females of Dyticus – Also case of <u>analogous</u> var.?
144 Case of analogous variation
167 Violent Battles in Lucanus <u>Males</u>
164 Definition of Typical form
343 5 species of Cionus taken on one plant of Verbascum
396 Coccinellae uniting, but producing sterile eggs

408 Forficula few species, wide ranges
447 So Male Crickett
413 wings not developed in certain species of orthoptera & Homoptera
SB3 ❑β
447, 445 after p.456 I will look out for peculiarities to see if variable in single species

75 *22–23*Q **104** *12–15m (Bonelli)*/Q *25–28m* **144** *4–10m*/Q *8–15w* difference in sexes hardly a variation. **164** *1–5m, 5m* **172** *29–33m, 37z* **184** *6–13w* of the few cases of differ known <u>two</u> being same group some are splendidly coloured *15–17m/16u "Linnaeus | Fabricius"* **187** *6–11m, 18u♠* **212** *24–27m/25u♠* **217** *21–25m* **236** *27–30m, 36–41m (Latreille)* **340** *30–35m* **343** *22–25m/w* Hard to see how selection cd make them **396** *9–14m* **397** *37–39m (Dufour)* **405** *13–16m/15u "rudimental"/w* wrong **406** *15–18m* **408** *34m (Audouin, Brullé) 37m (Serres)* **410** *22–24m (Serres)* **411** *16–17m/16u "rudimental | wings"* **413** *10–15m* **416** *16–22m* **421** *12–13m (Hummel)* **427** *32–36m/36u "resemble | fighting"* **437** *1u♠, 13–19m/18u "crepitaculum", 20u "foramina"* **439** *6–10m, 24w* Crickets **442** *9–13m/9u "fig. 54.7"/w✏* ●, *15u "underside", 20–24m, 30–32m* **443** *37–38m* **445** *3–6m* **447** *25–28m, 36m, 37–39m/w* does this vary? **450** *21–24m, 26–27w* Grasshoppers? **452** *9u "side | like", 10–11u "which | stridulation", 22–24m, 27u "two | 14", 35u "Linnaean Transactions", 37u "fifteenth volume", 38u "been | Donovan", 40u "as | mile"/37–40m (Guilding)* **453** *1–5m, 6u "exists | covers", 7–9m/8–9u "of | which", 11–13m, 15u "Lehmann | Sensibus"* **455** *30–37m* **456** *10–11w* <u>Locusts</u> **457** *25–29m* **458** *1–6m, 8–12m/9u "large cavity"/11w* probably *13–15m (Latreille, Linnaeus, Burmeister)* **460** *30–34m/32u "known grasshoppers"* **461** *13u "gayest | insect", 14–17m, 15–16u "posterior | being", 30u "Pneumora", 33–35m/34–35u↔, 38–39u↔* **462** *1–5m (Charpentier)*

vol. 2 NB1 ♦ 313; 402
NB2 These marks refer to many abnormal parts, which, if required, might be hunted up to see whether variable – I have put X to them
12; 15; 24; 37; 67; 80; 82; 88; 98; 109; 119; 147; 150; 154; 158; 160; 172; 224; 232; 237; 252; 254; 261; 279; 281; 311; 312; 319; 321; 324; 326; 329; 333; 342; 344; 340; 352; 354; 358X; 356 to 389X; 406; 422; 431X; 432X; 444; 454; 469 & 478; 481; 483X; 499; 502; 508; 514; 524; 526; 541; 557; 559; 567; 578; 574; 575; 473 Reduvius stridulating; 213 & 214 Mutillidae; 465 Homoptera

WESTWOOD

SB1 ❑β
40 Suppl Phryganea do Palpi differ in different species?
213 Mutillidae female destitue of ocelli
SB2 ❑β
12 Affinities of Termites
14 on their habits
15 doubts about pupae walking
24 Nemoura species in same genus with or without branchiae
67 do in Phyganea
88 Classification by habits alone fails 262 do
88 Ichneumons use ovipositor as organ of defence & secretes fluid 150 do
89 antennae very variable differs in number and form of joint, in various species & in sexes of same species
98 varieties in imago from differences in food (Ch. 7)
109 20 parasites on a saw-fly
119 All wood-feeders vary in size. Allude to Wollastons cases of molluscs of 2 sizes & Birds in note
147 Ichneumons avoiding vital parts of caterpillars
224 Strange diversity of neuters amongst Ants
232 Slaves ♣ only neuter pupae taken
228 Curious variation see F. Smith Pamphlet 155 on – ch 4.
237 On minute characters very constant through whole order – good sentence
261 On resemblance of some Flies parasites on Bees to Bees.
279 Important on diversity of workers in Hive bees. occasional workers Q
311 In Butterfly 34,650 facets on eyes
321 Allied insects generally fed on allied plants (showing how same character goes in genera
324 on single species not having some very abnormal character not sufficient to render character unavailing
342 Definition of typical
344 Cases of Butterfly with many relations
346 & 348 On Caterpillars of same genus differing greatly 352 & 386 & 294 do
♦ 406 & in Habits
524 in Diptera
356 Nymphalidae are polymorphous
359 Caterpillar attaching fruit to tree by silk-thread. (Difficulty) 381 do Q
380 Males of Bombyx flying swiftly
382 two crysalises in one cocoon in relation to something about silk worms
384 Parthenogenesis – males alone in 3d generation
SB3 ❑β

422 Musical instrument of male Cicada hard to understand by Selection
37 good on Libellula noticing bright colours –
428 Projection varies in the different species in Fulgoridae
431 Development of wings in Homoptera
454–469 & 481 Important Ch. 7
444 Retrograde development in Cocci: females lose artic. of body & limbs
526 Males of Tipulae fight Ch. 6
541 In Tabanidae only females blood-suckers – Males on Flowers

6 *16–23m* **8** *11u "Isoptera", 11u "single | Termes", 11x* **12** *5–7m/6u "economy", fig.w* Pupa *fig.w* Neut *fig.w* Neuter♦ larvae Neut **13** *21–23m/w* wide rangers **14** *16–18m/16u "closely | each"/18u "called | Latreille", 24–28m/u "under | head"/w* Neuters *25u "from | Po", 32–34m/33u "very | resembling"* **15** *13w* Analogy *14–16m/16u "lose | off", 31–36m/33x* **16** *9–10x, 18x, 40x* **21** *28–30m (Curtis, Lucas)* **24** *4–11m (Pictet)* **25** *5–10m* **26** *27–33m* **35** *14–17m (Ashton)* **37** *9–10m, 21–25m (Newman), 25–27m/25u✍ "In | males", '27–29m* **39** *29–31m (Réaumur)* **44** *11–12m (Dufour)* **67** *30–33m (Pictet)* **77** *17u "of | valves", 19–20m, 23–27m/z/26u "retroserrated spiculae", 28c "latter"/w* sheath *29–30m/30u "articulated | internal", 34u "spiculae", 34–35u "serving | internal"* **78** *8a "some"* male *9x* **79** *35x* **80** *17–20m* **82** *12–14m, 14–17m* **83** *35–36m, 36–39m* **88** *wt* Some evidence that formed, like corporeal structures, by selection.– ♦ not particular *1–3m, 2–8w* These agree with corporeal structures *38–40m (E.W. Lewis)*/Q **89** *1–2m*/Q **98** *20u "Dahlbom"/19–21m/w* first rate authority **109** *18–20m* **117** *10–17m* **119** *19–20m* **147** *17–19m/18u "feeding | matter"* **150** *27–32m/30u "painful irritation"* **154** *26–28w* variable *28–29m* **158** *33–37m* **160** *4–10w* like cirripedes *8–11m* **172** *4–7m/w* variable **181** *14–16m, 24m/24–25u "compels | abortive"* **182** *20–23m (St. Fargeau)* **183** *25–27m/26x/u "bee | makers"* **205** *8u✍ "jaws | burrowing"* **206** *8–14m* **209** *10–17m* **212** *22–28m (Strickland, Bakewell)* **213** *4–6m*/Q/*5u "latter | wings"* **214** *12–17m (Goureau)* **217** *11–12u "whence | abortive", 13–14x, 14–15u "which | wings"* **218** *4m, 5–6u "but | middle"/w* workers *19–20x/u "the | eyes", 23x* **219** *34–35u "especially | habits", 38–39m/x* **220** *2x* **223** *29–30m/x, 33–35w* transition to Hive Bee *36–37x* **224** *7x, 8–9m/9x, 16–19m/19x, 25x/u♠/22–26w* Different genera 2 workers *28u♠, 31–46m/34u♠/w* 4th genus *38–40m (Huber)* **225** *32–41m (Wesmael), 32–38m/33u♠/w* 3d gen *35–36x, 35u "immense | sphere", 38u "almost inactive", 39–40m/39u "only | honey"* **228** *16m,* *29m* **229** *5x/u "tribes|species"* **230** *19–20m/u "in|species"* **231** *1x* **232** *21–22x/21u±/18–29m (Huber), 34u "neuter pupae"/35x* **233** *22x, 25x, 27–29m (Lund), 28x* **234** *11x, 32x, 33x* **235** *6x, 10x* **237** *28–30w* folding of wings **238** *7x, 30–36m♦, 37–40m (Jurine)* **246** *22m/20–22w* Kirby says clear nest **247** *1x* **252** *25–28m* **253** *4w* Hive do *6u "constructing|nest"/w♦* How then had neuter & lost them? **254** *7x/u "females|alone", 10–16m/10–11u↔/15u "cuckoo"/14–15w* How arise **255** *27x* **260** *38–39x* **261** *36–38m* **262** *2–7w* Is there any case of Bee occasionally parasitic. *15–21m* **264** *10–11m/10u "These|all"/11u "and females"* **268** *8x/u "solitary working", 9u "great|this"* **269** *4x/u "Bees|Trigonis"/w* See Dict Class **271** *21z* **272** *28–34m, 30–34w* Ch. 8. like webbed geese Q **278** *38m/u "50,000|queen"* **279** *3u "distinguished|secreting", 23–24u "their|pockets"/w* see Kirby *32–40m (Huber), 34–41u±, 34x, 36x, 39x, 40x* **281** *8x/u "Unlike|hive", 10u "two|organs", 13u "pollen|posterior", 14u "the|joint", 15–16u "presence|nest", 28–32m, 29x, 36–39m, wb* Disappearance of these pollen plates interesting **285** *22x* **286** *27x/28x/w* vide this **287** *3x/u "neuters|being"* **311** *37–39m (Geoffroy)* **312** *19–25m* **313** *7–9m, 13–16m* **317** *34–35m/34u "Zygaenae|wings"* **319** *6–8m, 13–15m* **321** *28–32m (Loudon), 33–38m* **324** *29–34 m* **326** *7–8m (Boisduval)* **329** *15u "seven"/14–16m (Newman), 31–36m* **333** *11–13m/"...", 38u♠* **335** *4–5m* **342** *34–37m (Boisduval)* **344** *29–35m* **346** *32–37m/34a "Papilio"* p.348 **348** *24–31m* **352** *9–17m* **354** *7–12m2m* **356** *8–10m/w* Nimphalidae **358** *10w* (variable) *11–13m/x* **359** *5–8m/6u "the|of", 15–19m (Westwood), 15–17z* **368** *21–25m, 27–33m* **376** *37–39m/38u "twilight|considerably"* **380** *1–5m/w* which family with rudimental mouth *23–31w* It does not appear wingless *26–30m (Stephens), 29–31m/m* **381** *23–24m, 26–29m* **382** *35–36m/34–39w* happens with silk Worms. **383** *8u "Memoir|Trans."/w* Read **384** *4–12m/12u "pocket|cllector"/12–13w* Bombycidae *16u "Davis|4", 24–26m, 35–36m* **386** *15u "prominent"/7–16m/8–13w* larvae differ more than Moth *30–32m, 32–33m/33u "species|wings", zb* **387** *17–19m, 29–30m, 32m/a* "genera" wonderfully *zb* **389** *25–26m/w* wings variable?? **390** *18–21m* **391** *17–18z* **392** *36–37m/37u "which|fly"* **393** *1–2u↔, 2u♠, 3u "pluvial|patches"* **394** *22–27m/w* Mem.–Crustacea metamorphosis of **396** *8–11m/9u "occasionally|vertically"* **397** *19–24m, 32–34m* **400** *15–19m* **402** *25–27m* **406** *2–6m* **416** *15x, zb* **419** ✍ *6w* bristle-like *8x/w* 4321 *10w* **444** *11w* Coccidae *12w* Aphidae. Physillidae & Aleyrodae **421** *7u "the|three", 10u "antennae", 11u "seven joints", 12u "6"/w* or **422** *15u "legs|not"/w* for jumping *17u "males", 19u "the base", 20u "abdomen", 21u "insertion|legs", 23–28w* How arrived at by selection *26–28m/25–31m/*Q *(Réaumur, Goreau, Solier), 35–39m* **423** *12–13m* **427** *5c/u↔, fig.x, 7u "legs", 8u "general|leaping"* **428** *3–5m, 5–7*Q *10u "varying|species"* **430** *10–12m (Merian)* **431** *10a/u "species"/w* of Delphax *13u♠/12–14w* are some species winged & some not *14–21m, 24u "antennae|jointed"* **432** *2u "last|seta", 5u "ocelli|number", 5c "in number", 17–22m/w* ? variable in individuals **435** *11u "antennae", 12u "ten joints"* **438** *5u "antennae|jointed"* **442** *29–30u "broad|wings", 34u "antennae|jointed"* **444** *5–9m* **454** *16–22m, 23–29m* **469** *4–7m, 10–11m, 14–16m, 18a "condition"* ie with rudiments *20u "destitute|rudimental", 22–25w* like some plants with 2 sorts of Flowers *37m (Westwood)* **473** *17–18m, 23–25m, 31–34m* **481** *32–36m (Curtis, Linnaeus)* **483** *9–10m/x/w* variable **499** *2–5m/3u "proportionate"* **502** *10–13m* **503** *16–21m/w* a discussion of several pages on this. **508** *7–19m (Latreille)* **514** *7–9m, 17–20m* **524** *fig.w* all these larvae one family **526** *7–8m, 20–22m* **541** *3–5m* **555** *33–35m (Linnaeus)* **557** *36–38m (St Fargeau)* **567** *20–23m, 24–25u "thus|Ichneumonidae"* **571** *3–12m (Jenyns), 35:40m (Owen, Hope)* **588** *w ⟨list of orders of insects and number of subvenient species⟩*

Synopsis of the genera of British insects, 1 *8w* p.30 *10w* p.8 *11w* Stirps 2 p.4 **5** *zt* **8** *23–24m* **21** *26–27m* **22** *27–28m, 30m* **45** *1w* Antenna long *20w* Antennae short **49** *23–25m* **51** *21–23w* p79 Aculeata

WHEWELL, William *History of the inductive sciences* 3 vols.; London; John W. Parker; 1837 [CUL, S]
beh, cc, ch, cr, ds, geo, h, he, ig, mn, oo, no, pat, rd, sy, t, tm, ud

vol. 1 NB 17; 54; 80; 119 curious; 136 good sentence; 169; 238; O Feb/58
xix *18w* R **17** *18–21m/w* Herschel's craving – How acquired? **51** *11–14m/w* one does♦ can conceive such ignorance **54** *1–3m/1–5w* curious with respect to origin of language **80** *3–14m/9–10?* **119** *8–10m* **122** *13u "1461"/13–15w* How was this calculated **135** *11–12m/w* V. p.122 **136** *18–21m* **138** *14–16m/15u "ready|times"* **169** *13–18m* **238** *8–25m*

vol. 2 NB 127; 177; 287 good; 438; 482; Feb/58 O/
116 *11–17m* **127** *13–22m/w/wb* May conclude from this body of Man requisite. Hence

political state of country Great influence of science hence dark ages as in Spain **177** *11–17m* **180** *7[...], 18–19[...], 25[...], 30[...]* **181** *1[...], 13[...], 14[...]* **183** *m* **244** *1–10m* **287** *25–31m* **438** *11–15[...]/m* **441** *11–22m* **482** *30m* **483** *1–6m*

vol. 3 NB 188; 265; 321; 322; 324; 342; 352; 354; 369; 374; 379; 390; 397; 415; 419; 436; 448; 452; 456; 458 et sequitur; 466; 471; 472; 574; 576; 578 read whole Chapter; 582; 620
SB ❑β
Vol 3
189 374 Definition of classification p374
321 on natural Classification Linnaeus rules
324 very good
342 do. very good.– 352 do
459 Eyes of Cephalopoda discussed by Geoffroy in his Principes de Phil. Zoolog. p.55 1830
468 Maintains that every organ has some use

188 *24–31m* **189** *1–2m* **255** *12–19m* **263** *30w¢* **321** *8–23m/10–22w* This is strictly applicable to family likeness – though rules may be estab to guide observer as ✄ vary least or most *25–26u*✍ *"latent | instinct", 28–29m, wb*✍ when such expressions are used, it is certain there must be some great hiatus in our knowledge **322** *2–7m, 15–20m/w* what is this but to say, that every character is variable ● Linnaeus *22w* V. p.324 *24m, wb* when Published? **324** *13u "but | impossible"/ 11–14w* surely not always – Elephant? Man? **325** *3c "organization of life"/w* descent **342** *wt* Systematic naturalists are the heralds of Nature *7–8u "study | only", 7–12w* What organs abortive? What least subject to change? use of each part *13–17w* The relations consequent on one part, or organ changing *18–24w* Trifling resemblances independent of external causes of slight weight *wb* importance of organ is not the rule in species, or even genera. : only the red band on the Furnarii and Synallaxis of S. America. Consider the Trogons of world, whether ✄ there is not more **352** *17–28m* **354** *18–23m* **369** *5–22m* **374** *9–26m* **379** *15–22m/ 17–18u "Philosophy | Life"* **390** *1–4m/3–4w* see p.400 *5–7m* **397** *8–12m* **400** *26–27m (Harvey)* **401** *1–3m (Harvey)* **415** *11–25m (Grew and Malpighi)/15–18!* **419** *9–12m/9–22w* why not as well as the skin of the hand know how to grow properly, all live fresh again? or tree produces same buds **436** *15*/u "five sepals"/ 16u "five"/wb* * Preponderates in all Dichotiledons – & in Radiata – (?) Mem. Agassiz – Quinarian arrangement – 3 – in Monocotyledons **441** *21–30m (De Candolle, A.P.)* **448** *12–15m, 29m* **452** *18–31m, 30–31m (Jenyns, Clark)* **456** *5–14m/6–8w* Mammae in Man *7–14m/8–12?/9–10?/12–14m* **457** *11–15m (Geoffroy St Hilaire)/w* Clearly wrong **458** *wt* rather, the function gives rise to the structure **459** *15–21m/w* How singular that so different a series should have arrived at same end. **461** *3–7m* **462** *3a "play"/wt* thus qualified is correct. Owing to external contingencies, & numbers of other allied species & not owing to mandate of God **463** *1z* **466** *1–8m, 30–31m/ ? (Cuvier)* **467** *4a "made"/2–4m/w* born & altered *4a "offices"/4–5m/w* under changing circumstances *30–31m (Cabanis)* **468** *3m/ wt* Shrivelled wings of those non-flying Coleoptera?! *wt* In every science, one may trust that every fact has some relation, ♣ to whole world *3u "use"/w* relation *wb* In every animal, final cause or adaptation is applicable to far greatest proportion of structure. For otherwise it would be pressed **470** *1–3m, wt/1–19w* All this reasoning is vitiated; when we look at animals, on my view. *4–18m (Kant), 18–20m* **471** *wt/1–2w* When a man inherits a harelip, or a diseased liver is this adaptation as much as Bullfinch to linseed.– doubtless it is in one sense, but not that in which these philosophers mean. **472** *13–15m/w* appears to me rather far-fetched **473** *1a/u "possible"/ wt/1–3w* with innumerable other animals striving to increase *4–5u "those | it"* **543** *1–5m* **574** *1–25m* **576** *1–12m* **577** *1–31m* **578** *25–32m/ 27?/28u "constantly"* **579** *15–17m/16u "additional assumptions", wb* These are not assumptions, but consequences of my theory, & not all are necessary **580** *27m (Cuvier)* **582** *22–25m/23u "his | beauty"* **610** *7–15m/10–12?* **620** *1–5m*

WHITE, Gilbert *The natural history of Selborne* 2 vols.; London; C.& J. Rivington; 1825 [CUL, S]
af, beh, cc, ch, fg, h, he, mg, oo, or, sp, sx, t, ta, ud, v

NB1 Modifications & migrations of species of same genus shows great diversity in habits
See end of 2nd vol for Classified Index
◆ p169 ●; p277 Furnarius boring holes
NB2 p126; 139 Many birds do not pair; 169 allied species similar habits; p246; p255; p256X; p272X; p278; p292

126 *17–23m, wb* Good instance of punctual migration *wb* D'Orbigny case of memory of time **139** *2–19m/8–9Q/11u "cock | hen", 23–24Q*

169 *2–10m/3–6w* In S America same fact **246** *15–24m/15–19m* **255** *1–5m* **256** *6–17m/7–8w*✍ Lin 14 **272** *1–7m/w* like my bird boring holes **278** *6–26m/7w* p.773 **292** *12–17m* **320** *1w* Swallows

vol. 2 NB comparison with man good comparison with old animals gnashing their front fangs
p6; p8; p9; 10; p54; p56; p92; p110; 117; p119; p120; p124; p207; p296; p310
SB Letter 29 – On Partridges
139 On Birds when one shot, getting soon mated Q
246 on singing of Birds, due to rivalry
256 on wren hiding mouth of nest
272 Martins nests continually washed down
vol 2
8 on capons hovering or brooding over chickens
110 some notes of own on instincts
117 Barley in Hawks stomach from W. Pigeons
119 Chinese dogs not relishing meat Q
120 sporting Dogs refusing Partridges &c N.Q.

6 *1–18m* **7** *6–20m* **8** *1–4m/2–3u "hover|hens"/1–9w* dormant instincts in every male, account for a difficulty in origin *7–9m/?/9u "Mr. Lisle"* **9** *9–12m* **10** *wt* This must be reason, instinct would have led hog to have waited for boar *1–5m* **54** *1–10m* **55** *15–16z* **56** *wt* cause of straight lines easy to keep direction recollect FitzRoy idea of sounding-noises to hear the line when not see it *1–2m* **57** *15–22m* **92** *15–19m/15?/u "miscellanies"* **110** *wt* Habitual action, like instinct does not vary, indeed difficult to vary much bitter experience to cure tricks yet curable. so instincts can be altered.– *wt* habitual desires & actions go together in Man.– eating dinner Instinctive desires *wb* Habitual desires – appetite at certain times *wb* Instinctive action Habitual action – in sucking both must be brought into play *wb* Instinctive when origin cannot be traced in life of individual **111** *wt* in an habitual action, consciousness of desire which must be preparatory, obliterated *wt/1–11w* It is not more wonderful that a desire should be hereditary – than that memory itself should be hereditary. or that taste, mental thought should be so *7–24w* In Man an habitual desire may become instinctive or heredetary. ambitious man ambitious children – civilized man. civilized children *13–16w* It is transmission of thought through egg *15–19m, 17–21w* X– that cuckoos should know so much the impregnated ovum should be mathematical *20–25w* the mind has only cause to sleep *20–25w* because circumstances do not vary *wb* Man scarcely any instinctive actions. Many desires, & therefore many habitual *wb* animals having ♣ many instinctive few habitual actions? **117** *14–18m* **118** *12–19m* **119** *15–20m, 20–25m* **120** *20–25m/21w* good **121** *wt* If effect of being beaten as seems most probable a most curious instance if not yet an acquired instinct!– *1–4m, 3–6"...", 7–11m, 14–21m* **124** *1–3m* **207** *8–13m/11w* reason *wb* nothing short of it would make them run out of doors **259** *15–17z* **265** *zb* **296** *2–16m, 18–21m* **310** *16–19m/17u "Montagu|xxx"*

WHITE, Gilbert *The natural history of Selborne* new edn by L. Jenyns; London; John Van Voorst; 1843 [CUL, I by Jenyns]
beh, mg, phy, sx, tm, y

NB p47 on chaffinches sexes in flocks
p53; p69; p91; p112; p130; p137; p143; p173; p214; p236; p348; p204
SB ❑β
Mice using tail slightly as prehensile Brehm Thierleben says same of monkeys
69 Snakes using Dung Heap to incubate in NQ
112 on a cat habitually taking to water
137 Differences in migration within England NQ
140 Both male & female swallows have forked tails – but males the longest
143 Grey or Hooded Crow very rarely builds in England
214 On tough envelope to Dung of young Birds, due to inaction Q
215♦
348 On Birds near cotton-mills using cotton for nest. N.Q.
354 Dogs lose taste for flesh. Q
Letter 16 Martens building in exposed situations Q

47 *21–32m (Thompson)* **53** *21–27m* **69** *18–23m/18u "of|heap"* **82** *28–29m* **91** *17–21m/19u "protract"* **130** *30–34m* **137** *28–30m* **143** *28–32m* **173** *24–30m (J.E. Gray, Yarrell)* **204** *23–32m/29u "Mr. Blackwall"* **205** *30m* **206** *27–33m* **215** *23–26m* **216** *6–8z, 22–29m* **217** *9–13z* **236** *21–30m (Robert)* **348** *24–32m (Thompson)* **354** *9–14m*

WHITNEY, John Dwight *The auriferous gravels of Sierra Nevada of California* Cambridge, Mass.; University Press; 1879 [Down] ℘

WHITNEY, William Dwight *The life and growth of language* London; Henry S. King & Co.; 1875 [Down, I]

NB 139
139 *2–6m*

WHITNEY, William Dwight *Oriental and linguistic studies* New York; Scribner, Armstrong & Co.; 1873 [CUL, I]
beh, t

NB All on language
285; 287
No sound argument that Man cannot think without the use of words – 296– Quoted
353
354 Uses of unforseen Used✍
How far Language consciously invented Used✍

⟨many markings presumed not to be by CD⟩
246 *26–27w* chesnut **285** *15–28m* **287** *22–27m* **296** *31–35m* **297** *1–8m, 1–24"..."/12–17m/12–22m (Max Müller), 20–24m* **353** *11–25m, 32–33m* **354** *20–25m, 33–35m* **355** *6–8m*

WICHURA, Max *Die Bastardbefruchtung im Pflanzenreich* Breslau; E. Margenstern; 1865 [CUL, I]
ad, br, cc, ch, cs, f, fg, gd, he, hy, ig, in, mn, no, pat, sp, sx, tm, v, wd, y

NB1 ♦ the most striking case given of constitutional weakness of Hybrids
NB2 ♦ p22; p43 Variation under Domestication; 89 do – Look over – allude to theory of non-accommodation – will not do if Primula & Linum are sterile.–
SB1 ❑β ✍ *⟨mostly dictated by CD⟩*
Full Abstract Max Wichura
24 Willows have great power of combining into complex hybrids; he has united 6 species into one hybrid.
28 Thinks Gärtner's reversions due to parent pollen: Naudin's results point to opposite extreme. Does not Gärtner say that cultivated vars. revert more than wild species? Does this not account for difference between Naudin & Wichura?
see Book p. 2
29 The 6 fold hybrids cd not live –
31 Says generally that Hybrids are not so strong & healthy.–
30 Gradation in sterility of Hybrid willows which in extreme point of scale ends in death of young plants
35 Gradation in potency of pollen.
38 pollen gets worse & worse in offspring of Hybrids inter se & in (p.39) the more complex hybrid.
41 Luxuriance in hybrid willows is by no means the rule rather than reverse.
SB2 *⟨as 1⟩*
42 Cases of weakly hybrid willows
43 Believes in Kohlreuters view that luxuriance of hybrids results from sterility, false from mongrels –
43 & 44 Number of individuals of either sexes modified in hybrid willow. There are more females & see p.63.
50 Never saw a prepotent type & therefore doubts Gärtner.
56 variability in hybrid willows when hybrid pollen used; uniformity when pure pollen used.
58 & 66 difft kind of hybrid willow found wild
64 Gives proportion of hybrids to pure species in different districts – in some places more hybrids than pure plants –
65 Ingeniously explains how they abound on certain spots from rapid Germination ✏ of seed –
80 gives case of species very like each other yet do not unite easily.–
SB3 *⟨over, CD⟩*
Gärtner p.474 & 582 on Reversion occurring chiefly in cultivated Plants – Naudin who used cultivated plants goes to one extreme & ♣ Wichura who experiments on wild willows goes to other extreme
SB4 *⟨as 1⟩*
83 Explains sterility of hybrids by combined organization being ill-fitted for conditions. I give this view p.288/3rd ed. of Origin; but contradicted if offspring from homomorphic unions are sterile.
85 Explains increasing sterility of successive generations of hybrids inter se by interbreeding like I do.
85 The crossed Triticum & Aegilops which increased in fertility had 3/4 of Triticum blood.
89 cultivated plants which vary most often have irregular pollen and seems to think there is some analogy between variability & hybridism
92 Cultivated plants like hybrids, are in a state of dis-accommodation & he gives Kohlreuters view on this point

10 *13–14u*↔ **11** *14–18m* **22** *fig.m/w* 6 species compound into one. **24** *14–17m/11–17w* In Willows great power & tendency for production of complicated Hybrids **27** *9–10m (Gärtner)/w* 4 generations implied for Reversion *16u "individuelle", 13–17w* Propagation of individual peculiarity in a

Hybrid **28** *wt/1–5w* Thinks reversion of Hybrids due with Gaertner's experiments to pollen of either parent – I daresay Naudin's reversions are largely due to his plants being cultivated *3–6m, 27–28m* **29** *17–18m/17u "sechsfachen"/18u "die | Grunde"* **30** *9–13w* Gradation of sterility *16u "aber | in"* **31** *5–11m/10u "aber meist"/6–8w* gradation in number of seeds *15–16u↔/?!* **35** *24–26m* **38** *6–11w* pollen gets worse & worse from hybrids inter se **39** *12–14m/12u "Zahl"/13w* mingled **41** *8–9m/u"doch | Regel", 21–23m/21–22u↔, 25–26m, 30–31w* dwarfs from weakness **42** *wt/1–21m/w* cases of weakly Hybrid willows did not produce flowers **43** *1–9w* believes in Kohlreuters view that luxuriousness of Hybrids results from compensation for sterility *20–22w* Relation of sexes modified in Hybrid Willows *17[✎, 20u✎ "Zahlverhältniss", 21u✎ "als | Arten", 29–30u✎ "Differenz | bedeutende"* **44** *3–4u "mehr | weiden", 8–13w* more females! under nature Hybrid females very abundant *9u↔, 12–13w* 1/10 males females *16–17u"unter | befand"* **50** *8–16w* never saw a prepotent type in willows & doubts of Gärtners statement **52** *9m* **56** *17–22m/17–18u±* **58** *14–17m/16–17u "66 | ihren"* **63** *10–12m* **64** *6–7m/u↔, 9–13m, 34u "einzelne"* **65** *1–3m/1u "zusammenwachsen", 2–6m/w* more Hybrids than pure parents!! *9–28m/10–20w* Explains how these numbers come from willows vegetating only in bare places **80** *10–12m* **82** *21–25w* common mule *24u "eine | Bastarde"/24–25m/?* **83** *9x/wt* X I give this view distinctly p.288 3d edit of Origin *10–12m/10w* Clever *15–25w* no Hybrid exactly fitted for place in nature – contradicted by species from different climates forming Hybrids **84** *wt/1–5m/w* More different the parent species the more imperfect the Hybrids **85** *2–11w* This is my view of interbreeding causing sterility in successive generation, but too rapid *28–29m/29u "Die | begreift"* **89** *8–19m/w* Plants which vary have often irregular pollen – I think some connexion between sterility & variability **92** *8–29w* Cultivated Plants like Hybrids are in a state of disaccommodation.– *33u "Die | wird"* **93** *1–3m (Koelreuter), 21u "dass | Accommodation", 22u "Fähigkeit | Varietätenbildung"*

WIESNER, Julius von *Das Bewegungsvermögen der Pflanzen: eine kritische Studie über das gleichmässige Werk von Charles Darwin* Wien; Alfred Hölder; 1881 [CUL, I]
cc, mhp, phy, t, y

NB ♦ 60 I think ◊

8 I do not understand; 11 no; 34 no; 80 no; 78 Georges translation; 158♦ George; 122; 126; 162; 211
⟨*by GD*⟩ What you say p.485 almost justifies Wiesner
SB ⇨ Pots 2, 4, 8, 12, 16, 20 ft (for 4 hr) in 2d 1/4 3d 1/16 4th 1/36 5th 1/64 6th 1/100 of the light received by the seedlings in the 1st Pot

3 *23–27m* **8** *12–22m/1–21w* do not understand whilst struggling itself accommodation wd stop **9** *4u "beschränkten Masse"* **11** *19u "alle", 19u "Circumnutation", 19w* no *20u "Reizphänomene"* **24** *1m, 17–20m/18u "nicht | Zusammenhang"/w* no **30** *13m* **60** *23u "Krümmungsfähig"/w* no **66** *32–34m/32u "nicht heliotropisch"* **68** *17–20m/17w* Weight can **69** *8m* **71** *1–5w* loading very good **73** *2m* **78** *zt, 23–30m/17–29w* I do not understand **81** *1m* **122** *10–31w* But will not Cotyledons place themselves horizontally in the dark **123** *8–10m, 18–21m/!* **124** *8–10m* **125** *7m* **126** *wt/1–17w* It ought to be tried again. Whether Cots. (with hypocotyl fixed) bend in proper measure to bright light. *33–35m/18–35w* In my study, when hypocotyl. bend itself Cots. were horizontal, but when with same light Cot fixed the Cots bent in proper measure **127** *3–14m/w* I cannot quite follow *20–31w* Do all Cots rise if kept in dark? **162** *wt* It does not explain lateral mvmt. *5–11m/1–11w* This does not apply to 2 triangles **205** ✍ *22u "Fast alle", 23u "sind | bewegungen"* **211** *23–27m/?/26u "verkümmern | sterben"/w* no

WIESNER, Julius von *Elemente der wissenschaftlichen Botanik: 1. Elemente der Anatomie und Physiologie der Pflanzen* Wien; Alfred Hölder; 1881–89 [Linnean Society of London, I]

WIESNER, Julius von *Die Heliotropischen Erscheinungen im Pflanzenreiche* Wien; K. Gerolds Sohn; 1878–80 [CUL, I]

WIGAND, Albert *Der Darwinismus und die Naturforschung Newtons und Cuviers* 3 vols.; Braunschweig; F. Vieweg & Sohn; 1874–77 [Down] ℘

WILCKENS, Martin *Form und Leben der landwirtschaftlichen Hausthiere* Wien; Wilhelm Braumüller; 1878 [Down, I] ℘

WILCKENS, Martin *Grundzüge der Naturgeschichte der Hausthiere* Dresden; G. Schönfeld; 1880 [Down, I]

WILCKENS, Martin *Die Rinderassen Mittel-Europas* Wien; Wilhelm Braumüller; 1876 [Down, I]

NB Skimmed too difficult O

WILLIAMSON, William Crawfurd *On the recent Foraminifera of Great Britain* London; The Ray Society; 1857 [Down]

NB xi
xi *2–11m*
℘

WILLIAMSON, William Crawfurd *On some of the microscopical objects found in the mud of the Levant and other deposits* Manchester; Gillett & Moore; 1847 [Down, I]

WILSON, John *British farming* Edinburgh; Adam & Charles Black; 1862 [Down]

NB Colling, Ellman, Bakewell

WILSON, Owen S. *The larvae of the British Lepidoptera and their food plants* London; L. Reeve & Co.; 1877 [Down, S] ℘

WINKLER, Tiberius Cornelius *Descriptions de quelques nouvelles espèces de poissons fossiles des calcaires d'eau douce d'Oeningen [Down, I]*

NB O/

WINKLER, Tiberius Cornelius *Des tortues fossiles* Haarlem; Les Héritiers Loosjes; 1869 [Down, I] ℘

WOLLASTON, Thomas Vernon *Insecta Maderensia* London; John Van Voorst; 1854 [CUL, I]
gd, oo, no, sp, tm, v

SB1 Cossyphodes a Blind Insect in Ants-Nest common to the Canaries Isd with wings obsolete & Bates says Prelaphidae are blind but some have yet wings & fly & are f. in Ants-Nests.
SB2 ❑β Genera marked Woll. & so I presumed endemic
⟨*list of genera and number of their species; totals calculated*⟩

⟨*untranscribed words are numbers of varieties listed under each species*⟩ **xxxva** *11w, 15w, 22w, 34m, 37m, 40w* **xxxvb** *7w, 11w, 16w, 21w, 25w, 29w, 39w, 45w* **xxxvia** *4w, 10c "var β", 17w, 18m, 33w, 42w, 45w* **xxxvib** *4m, 16w, 25w, 34w, 42w, 47w* **xxxviia** *2w, 10w, 19c "109 spinipes, Woll.", 19w* var a *30w, 33m, 35m, 42m, 44m, 54w* **xxxviib** *4w, 8w, 15w, 27w, 31w, 32m/?, 33w, 36w, 37m, 38w, 40w, 42w, 45w, 47w, 49w* **xxxviiia** *6w, 9w, 12w, 17w, 20w, 28w, 31w, 34w, 37w, 40w, 44w, 45–46m, 47w, 50w* **xxxviiib** *3w, 6w, 7m, 9c "var β", 12w, 14w, 15m, 17w, 20w, 34c "206 | Woll"/w* e <u>var</u> *35w, 37w, 42w, 47w, 49w, 51w* **xxxixa** *2w, 7w, 8m, 9w, 10m, 15w, 16–17m, 18w, 21w, 24w, 29w, 31w, 32m, 43w, 45m, 46w, 47m, 48w, 53w* **xxxixb** *4w, 7w, 13w, 15w, 30w, 35w, 37w, 43w, 46m, 47w, 49w, 50m, 55c "281 | Woll"/w* var α *56c/w* var. β **xla** *7w, 12w, 14m, 17w, 18m, 20w, 21m, 23w, 25w, 27m, 28w, 33w, 36w, 43w, 53w* **xlb** *3w, 7m, 8w, 13w, 17w, 19w, 21w, 22w, 23m, 24w, 26w, 27m, 28w, 32w, 35w, 39w, 43w* **xlia** *4w, 13m, 15w, 17w, 19w, 21w, 30w, 43w, 45w, 49w, 50m, 51w* **xlib** *2w, 4w, 5m, 6w, 8m, 11c "370 | Woll"/w* var α *12m, 14w, 15c "var β", 17w, 20w, 22w/?, 24w, 26w, 29w, 31w, 35w, 36m, 39w, 40m, 42w, 46w* **xliia** *3w, 21w, 25w, 30w, 33w, 36w, 43w, 46w, 50w* **xliib** *4w, 6w, 7m, 10w, 27w, 35w, 37w, 39m, 40w, 45w, 48w, 50w, 52w, 54w, 57w* **xliiia** *4w, 7w, 9w, 17w, 20w, 22w, 26w, 28w, 31w* **lxiiib** *1m, 2w, 8w, 9c "var β", 13w, 19w, 21w, 28w, 29m, 30w* **21** *1–2*Q

WOLLASTON, Thomas Vernon *On the variation of species* London; John Van Voorst; 1856 [CUL, I]
ad, af, beh, br, cc, ch, co, cr, cs, ds, dv, em, ex, gd, geo, ig, is, mg, mn, oo, rd, sh, sl, sp, sy, t, ta, ti, tm, ud, v, wd

NB How are Birds? in size measure wings of Swallow
4 *11–14m, 12–19m,22u "namely | creation"* **5** *11–12*Q*/u "a | stability", 14m/*Q *15–16m, 25–27m* **16** *12–15m* **24** *13–14m/13u "240", 20–23m* **27** *25–29m* **29** *15–18m/*Q **30** *25–29m/*Q **31** *2–9m/*Q *20–25m/*Q *22u "Europe | Madeira", 26u "Sweden | Canaries", 27u "insect | cosmopolitan"* **32** *11u "the thesis", 12–16m* **33** *1–9m/7–8w* why not a true species *12–19m* **34** *7–12m (Westwood, Kirby), 23–27m* **35** *20u "small", 21–23m/22u "of itself", 29!/u "legitimate variation"* **36** *2–4m, 17–22m, 23u*↔ **37** *11–17m* **38** *1–2m, 6–8*Q *9–14m, 26–29m/w* Glacial Inst **39** *10–15m/*Q *18–23m/*Q **40** *10–14m/11–12*Q *16–20m* **41** *4m, 5–6*Q *6–9m, 15–18m, wb* Do not forget changes in larval condition.– as causing change in Mature **43** *26–29m/*Q **44** *1–3m/*Q **45** *1*Q *4–6m/w* How odd *15–16*Q *23–25m, 28–29m (Westwood)* **50** *21–24m* **54** *25–26w* Great webs, action on the larvae? So in plants, according to Decandolle) *26–28m* **55** *2–7m* **57** *14–16m/*Q *26–29m/*Q **58** *2–8m* **59** *1–5m/3u "so | colour", 10–12m/*Q *23–25m (Hardy,*

Bold) **60** *wt* Q *2u "the change", 12–14m/12u "southern shores", 22–26m* **61** *wt* Q *4–6m, 13–19m, 27–28m* **62** *7u "ornamented typically"/6–9m/w* variation analogous Q **63** *3–6m, 8*Q *9–12m (M. de la Ferté)* **64** *wt/1–4m/3–4u±/1–6w* Q How curious the impossibility of creation & variation producing same end. Capacity in one case & not in other to adapt itself or be acted on.– *8–17w* You have a vera causa, but you invent another.– **65** *3–4w* do not understand *11–20w* It is begging question to attribute these to soil. *14–18m, 18–29m/22–29w/wb* May be the result of something of use, or indirectly connected. **66** *21–29m* **67** *1–5m (Curtis)/w* This common & important **68** *6–14m, 21–23m* **69** *1m, 3–7m, 12–18m, wb* Here the forest seems the active cause **70** 1Q *13–18m/16–18"..."* **71** 1Q *22–23m, 25u "constant | atmosphere", 29u "diminution | area", wb* reduces isolation to these – & interbreeding **72** *11–13m/u±/7–12w* Java Sumatra America? **73** *15–20m* **74** *1–4m, 10–12m, 19–20m* **75** *wt* It is very important that the linking forms are often rarer; by Mr Wollastons account, these the extremes: hence easily exterminated. *wt* How far are intermediate links produced by crossing? If so they wd cease when species made *5–8m, 19m* **79** *13–15m* **81** *20–21m/w* (a) *wb* (a) Thinks decrease of wings increases size in some instances & It makes up for isolation which tends to reduce size **82** *8–9*Q *10–13w¢¢, 19–20m/w* why *25–30m/*Q*/u/w* 17 **83** *6–10m/w* & p85 *8–10u±, 14m/*Q **84** *5–6w* Balancement *6–10m, 23–26m, wb* But how cd it have gone over low lands, certainly hotter, than present Madeira. Applies to Balea pencosa, & ! **85** *wt* With this I can hardly believe, that intermarrying can decrease size.– May not greater powers of locomotion be regained for apterous insects *13–14m, 15–18m/15u±/w* (2) Q *20w* (3) Q *24–26m* **86** *3–5*Q *27–29*Q **87** *12–16w* Can this account for absence of thalerophaga lamellicornes *14–16u "if | certain"/*Q *wb*♦ Why not allude to greater propor **88** *5–8m, 16–20m/20u "are | elsewhere", 20w* opposed to **89** *1–2m, 2u "external | form", wt* This cannot be interbreeding ∴ probably in all cases some other relation.– **90** *wt/1–15w* It wd be well to put the case of 2 isld were united, there wd be largely intermediate forms: or indeed ♣ the variation prevented. Just as varying exceptionally slow, so a few crosses wd help to check it. **96** *6–8m, 10–13m* **97** *24–28m* **98** *19–29w/wb* Wings, I suppose last developed organs, can that bear on their variability? **99** *wt* Insects may seldom be able to fly so decrease like ducks or silk moths come into play, aided by selection. Analogy of wingless Birds, cd lead to former belief. **101** *18–23m (Westwood, Spinola), 29m* **102** *1–5m, 20–26m* **103** *1–6m, 16–17m, 22–24m* **104** *25–26u "size | colour", 26–27m* **105** *12–13u "two | states", 23–28m/w* so in Birds **106** *17–19m/w* so in Ploceus & Icterus **109** *4–6m* **115** *12–14m/?* **116** *9–15m/?* **117** *6–8m/?/u "with | powers"* **119** *13–15m, 14u "once continuous", 15u "slowness"/w* hypothesis **120** *13–16m/?* **122** *19–20m* **124** *6–9m, 10[...], 16–20m* **125** *10–14m, 11–13m/w* think of confined mammals & Birds *25–27m/25u "Its | rarity"* **126** *23–24u "the | regions"/w* Lyell **128** *10–14m, 12–16m* **129** *3u "Sir Charles"/w* No *5–9m, 14–16m, 18–20m, 23u "occur | state", 20–25m/w* (not differently associated with other organic beings. **130** *11–12u "extreme | progress", 14–15m* **131** *5–6w* & some appeared *8–10m, 11–31m/11w* variation *13–15m/w* (a) *17w*♦, *wb* (a) We shd not expect much change in sea-shells within such a period. **132** *1–12m/8–9*Q *13–21m, 27–29m/*Q **133** *9–12m, 14–18m, 18–22m, 18–20m, 21–22*Q **134** *wt/2–9m/1–11w* Both these wider spreading & varying species: must do so to have local vars. *wb* All amount of differences, simply called species, when great (and formed by selection) & called vars, when small & intermediate not found **135** *wt* Did a creative spirit blow from S. to N.?! *9–11w* unintelligible to me, except a mutation *12–18m/13u "that | tract"/?/16u "identical", 22–23m/23u "aborigines"* **136** *15–16m, 25–27m* **137** *22–29w* i.e. that some ♣ Madeiran insects have got into S. Europe **138** *wt* Yes when it was cold, there wd have come a different set, even if current always the same *4u "distinct epochs"/?* **139** *12u "genera"/12–14w* What have they to do with land **141** *9–11m/!, 12u "generic areas"/12–14w* but not points *14–15u "on | planned"/wb* no explanation it is mere assertion of fact **143** *26–28m* **144** *14–17m/w* sure & certain witnesses **147** *10–19m (Kirby), 27–31m* **148** *2–5m (Lyell)* **153** *10–14m, 15–17*Q *26–29m/w/wb* Probably often renewed like Alpine Plants *wb* These cases opposed to struggle for existence **155** *9–10m, 26–28m*♦ **158** *14–15?/u "first | instincts"* **163** *19w* hypothetical **165** *17–22m* **166** *wt/1–9w* Breaks influence greatly as shown in groups by enchainement *9–24w* ie branching whether or not extinction *13–16m, 19–22m* **168** *wt/1–25w* Probably a species ought to be described animal–Vertebrate–Mammal–Carnivore–Canidae–Canis familiaris **170** *19–24m*♦ **171** *9–26w* All much too Metaphisical

Nothing to me – *27u*♦, *22a "position"/wb* in affinity or geograph position **172** *9a "cannot"/ wt* He means always have been!! *11–23w* Shows the effect of studying insects in comparison with Mammals *14u "accident", 15–19m* **173** *20–23m* **174** *9–16m* **175** *6–12m, 20–24m* **177** *wt/1–9w* How good to make genera when new rising comes on.– *13w* new *14–25m/w* most genera in isld he attributes to extinctions but does not apply to cases like coral islds.– *20–25m/wb* so A. de Candolle in Plants, but he applied it to very distinct plants – so in Birds **178** *29–31m* **179** *24–26!, 25–27m, 25–26u "convinced|demarcation"* **185** *6–7*Q *10–12w* same as A. Decandolle **186** *5u "most mischievous", 28u "monstrous", wb* you may doubt when I doubt, but if you go one step further you will be eternally d—d, quoth the Priest. **187** *19w* Canary Birds *22u "cultivated plants/21–23w* flowers! Rices **188** *6–9m, 14u "absurdity", 17u "unsound", 20–23m, 20–29w/wb* why then created? Do you know these conditions well enough to say why one is rarer than another. Yet quite ignorant of the Life of larvae. **193** *3u "traces|design"/3–6w* Flowers Canary Birds Fancy Pigeons *8m*

WOLSTEIN, Johan Gottlieb *Über das Paaren und das Verpaaren der Menschen und der Thiere* Altoma; Hammerich; 1836 [Down]

118 *wb* O/ Rubbish.

WOODWARD, Samuel Pickworth *A rudimentary treatise of recent and fossil shells* 2 parts and supplement; London; J. Weale; 1851–56 [CUL]
ad, af, ch, ci, ex, fo, gd, geo, hl, is, mg, oo, no, sh, sp, sx, t, ti, v, wd

part 1, 61 *9–11m*

part 2 NB p.271 good
✍ Relation of Extinct & living genera S. America
167 *26m/u "Phosphorax, Webb", 28u "Sandwich Ids"* **168** *30u "Cryptella, Webb", 31u "Canary Ids."* **169** *11u "Canary Ids."* **170** *19u "Philippines"* **271** *10u "Miocene|Patagonia"*

Supplement, NB ♦ All; p.336 Sexes of Tunicata
p.439; p.454; p.486
336 *19–21m* **348a** *3–7m, 13m, 20m* **348b** *9m* **349** *21–23m, 38–40m* **350** *38–40m, 44–45m (Forbes), wb* Read **351** *wt* X In sense of typical representing structure of whole group, it comes to commonest form have widest ranges – aberrant form extinction, is quite applicable to this view *8–10m/1–21w* as aberrant probably here means widely different, must have been produced by extinction *9–10x/20–32m* **352** *16–20m, 21–27m (Swainson)* **353** *3w* In Tropics? *26–30m* **354** *wt/1–9w* are these not also Cape? *4a "sea"* about 30. p.363 *3–5m, 8–9w* Never mind *21–22u "Red Sea", 24u "Cape"* **355** *15–17m (Forbes)/16u "subject|form"* **358** *wt* If Boreal inhabited arctic region, there wd have been more continuous coast land, in fact quite continuous land. *3–5m, 6–8m, 43–51m (Richardson)* **359** *23–29c/25w*✍ N. Zealand Chile *26m/u "Mesodesma", 27u*✍ *"Boreal", 26u "Crepidula"/w* is f only wild in Tropics **361** *43–46m* **362** *27–28u*↔*/27–37w* What endemic. None *37u "83|the"* **363** *1–3m, 9u "about 30"/ 40u "74", 20u "200|extinct", 22u "The|Sea", 38u "common|Indies", 39–44w* 44 being common to Atlantic & Red Sea **364** *6u*♦, *8–9c/w*¢, *9w* S.P.W. *28u "part|Caspian"* **365** *18a "shells"* living I suppose **367** *12–13m, 23u "200", 24u "11|common", 25u "whilst|the"* **368** *wt* Strange so few ♣ *wt/1–15w* are these found in Tropics with cross seem good case *wt/1–12m/w* All doubtful according to Woodward *18–22m, 39m (Cuming)* **368a** *8x, 9u "Red Sea", 13x, 14x, 15x* **368b** *7u "Red Sea", 8x, 11x, 13x, 15x*✍ **369** *18–22m, 26u "74", 32–34m* **370** *42–44m* **371** *16x/u "Solonella"/w*✍ & nowhere else America & Medit. *17u "Panopaea"/w*✍ Confined to & Australia W. Africa♦ *18u "Monoceros", 19m, 20w* no– *26w* Falklands p378 *27a/u "Modiolaria trapezina"* Falklands p378 *28w* book in Index **372** *19w* During glacial *21–23m/21–22u "same|found"* **373** *4–8m, 33–34m, 37–39m* **375** *10–13m, 29m (Cuming), 34m/u "Litoral|common"* **381** *14–18m, 23–24m* **382** *3–6m, 15–19m, 19–22m/w* in Land & F. W. Mollusca **383** *10–11m, 33u "74", 34u "water|4", 38–39m (Deshayes)* **385** *29u "Spain|Syria", 33–37m/34u "mountain"/36u "has|46"/37u*↔ **386** *5u "peculiar|snails", 14u "and|Limaces"/ 9–18w* ? p.383 only 74 British *19u "132", 20a "The"* 3 *20u "section|limax", 22–25m/w* Saline, Marine, very little water *28–29u "11|Santo", 34–35m, 36–41m, 40–41m (Wollaston), wb*♦¢¢ **387** *wt*¢¢, *wt* Vide p486 Supplt Fossil Landshells *1–6m, 2m/u "(132) 111", 3–4u "5|11", 6–19w* as Sicily has 3 peculiar Limaces, these are probably introduced *13u "Ancylus fluviatilis"/11–13w* introduction & only 2 F.W. Shells *16–17u*±, *22w* living 64/132 fossil *22–34w* Santo *42–43m (Wollaston)* **388** *1–5w* Looks so.– *8u "Only 13"/10u "and|viz"/8–11w* more modern group *1–17u "80|Limax"/*

w 60/80 perhaps *18u "these|peculiar", 19u "and|Indies", 20u "Physa|1", 21–22m, 43u "trunks of", wb* Canaries **389** *10u "Limax Ascensionis", 18–22m/19u "The|species", 26–27m, 27m, 36m, 45–46m (Sowerby)* **390** *wt/8–12m/1–15w* Hooker says Ferns at Ascension are W. Indian *28u "similar"/w* not identical **391** *21–22m/21u "section|Madagascar", 38–40m/38u "The|peculiar"* **392** *24m, 34–35m* **393** *25–28m, 30–32m* **394** *16–19m* **395** *2–5m (Mousson), 38–40m* **396** *29–32m, 30u "peculiar", 33–34u "two|bitentaculata", 36–40m/37u "Melanopsis|type", 40u "Vitrina zebra"/wb* 2 Vitrine ♣ in fact naked **397** *15–17m/16u "those|islands", 31–34m/31–32u↔, 35–37m, 40–42m* **398** *4–6m, 13–17m/15u "one Limax", 18–26m/18–19u "the|multispiral", 21u "Helices|glabrous", 34–38m, 41–44m (Humboldt)* **399** *33–38m* **400** *41–42m (Waterhouse)* **401** *42–43m* **402** *5–7m/6u "4", 12–14m* **403** *1–4m, 30–32m/!/u↔, 40–41m* **404** *4–6m* **405** *19–38w* See range of these Genera &c *27–28m/w*✍ N. Bolivia & J Fernando *30u "least|shells", 30u◆, 35u◆, 36u "Spiraxis"/wb*✍ sub. gen W. Indies. Mexico **407b** *31m* **408** *28u "close"/26–29m/w* so successions of Life *30–31m* **410** *26–31m/29z* **411** *wt* on questioning how many forms are this kind *1–4m/w* evidence? *11–14m/w* ? compare to sea shells? *14w* This is contradicted by changes in islds *15–16m, 16–19m (Forbes), 20?, 22–25m, 26w* Where means of distribution are Mundane *39–40m (Lyell)/wb* but not these sea-shells – that is not known **412** *8–11m (Forbes), 14–16m, 18–21m, 31u "some|larger", 36–38m* **414** *wt* ☞ Capital Table But only some of the genera *1a "of"* some large *4u "Litnites"* why italics ↕*w* There ought to be a line for each genus *34–36w* why both given *25–36w*◆ How few began in Tertiary per **415** *wt* See my Table *1a "of"* all? for he speaks of 85 in next Page *9–16w* Begin in Tertiary *wb*◆ 62 It wd be curious to arrange these like last table ↕*w*✍ *⟨each line numbered⟩* **416** *1–25w* Other Tribes Cirripedes now must replace other animals *13–15m, 16–19m, 20–25m/?, 26–30m, 34–36m* **417** *wt/fig.w/1–12w* Hence reduced organisms now flourish, & so it is with Fish: take place of lower animals from some advantage *4–6m, 5u "classes|testacea", 9–10m, 10a "typical", wb* Most evenly balanced. *12–15m* **418** *23–24m, 31–32m* **419** *wt* I shd say an ideal archetype was that form from which in imagination all others cd be made with parts changed *1–3m/3u "their|archetypes", 4–5m, 26–27?, 30–32m, 33m/w* end *37–41m* **420** *1a "extent"* compared to Land Mammals *2w* ∴ if not changed, they

will be widest rangers *26–28m, 29u↔* **421** *5–9m/9u "White|rusticum"/wt/1–10w* a very long Journey for them by Mediterranean *21u/u◆/22u/23u♠/19–21m/18–25w* Are these American. *wb*➾ Monoceros America ◆ except M. Zebra ✏ No ➾ Pseudo olive W. America (but fossil in Europe) only in Eocene.– Solenella America **422** *15–17m* **439** *40–42m* **454** *11–15m/m, fig.m* **486** *28–32m*

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NB Excellent book
v *5m (Spencer), 9m, 15m (Lewes), 16m (McCosh, Tyndall), 19m*

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⟨markings presumed to be by FD⟩

WÜRTENBERGER, Leopold *Studien über die Stammesgeschichte der Ammoniten* Leipzig; Ernst Günther; 1880 [Down] ℘

WÜRTENBERGER, Leopold *Studien über die Stammesgeschichte der Ammoniten* Leipzig; E. Günther; 1880 [CUL, I] ℘

YARRELL, William *A history of British fishes*
2 vols.; London; John Van Voorst; 1836
[Down]
beh, he, sx, tm, v

vol. 1, 77 *17–20m, 28–31m, wb* p81 ask further **78** *5–10m, 11–12u "These|pacific"* **79** *14–16m/15u "both sexes"/16u "spawning"* **81** *14–16m/14m/?* **84** *4–7m, 9–15m* **231** *14–17m* **265** *12–16m, 16–17m, 19–21m* **266** *9u "dingy|colours"* **267** *26–29m, ⇑1u "says|shorter"* **268** *4–6u±, 14–15m, 14u "head|whole", 15u "removed two"* **307** *23–28m* **319** *17x/u "eighty|varieties", 22–31m* **331** *25–31m, 32–33m* **332** *29–31m* **336** *7–12m* **373** *17–20m, 22m*

vol. 2 NB Raia p.415; 416; 424
Flatfish 210; 217 reversion; 256 Teeth of soles
10 *17–24m* **11** *5–11m* **12** *13–18m/14u "ten|sides"* **210** *4–9m, 17–19m, 22–23m, 32–33m* **211** *3–5m, 11–13m* **217** *22–24m* **328** *11–19m/19w* p345 **329** *20–22m* **338** *20–23m* **345** *5–10m* **415** *5u "breadth|it", 6u "pectoral"* **416** *wt* some sp have all teeth like male some sp do. are like female *fig.w* G. says true male fem. *2–3u "Thornback|alike"/w* Raia character *10u "skate", 11u "sharks", 11u "each|fin", 23u "claspers", 24–25u "peculiarities|spines"* **417** *1–3m/1–6w* G supposes aid to claspers fin by double under *7–9m/9w* all tectorial○ *15–17m/w* catch by fins *20–21m* **422** *9–10m* **424** *fig.md* **425** *5–6m* **431** *18–23m* **436** *fig.w* The female G says only has the thorn.

YARRELL, William *A history of British birds*
vol. 1; London; John Van Voorst; 1839 [CUL, I 14 June 1839]
beh, br, cc, ch, ex, f, gd, mg, oo, no, sp, ss, sx, ta, tm, v, y

SB1 ❑β
99 On Relative Length of quill-feathers in Hawks & Owls
159 Curious & important Rules of colour in Birds compared to young Ch. 6 Sexual Selection
166 Bird quitting nest at certain temperature Q
182 Increase of Missel Thrush
299 X✎ On use of feathers distinguishing species Wrong Q
327 Great tit will kill little Birds
412 Sky-lark breeding in confinement
444 X✎ Variation in Nest of yellow ammer, considerable nest various of Sparrow in different situations Q
470 Tree & House sparrow so different in rarity & yet Tree has wide range Habits & nidification same. Ch. 5
506 Redpoles in confinement do not get red Breast

5 *10w* 2 eggs *16u "Astrachan"/17u "India"/w* immense range **12** *5w* 2 eggs **17** *4w* 2 eggs *12m, 14–15m* **22** *27w* 2–3 Eggs *32m* **24** *28–30m (Jardine)* **27** *12–14m, 19–23m, 24–26m* **34** *10w* Eggs 3 **38** *13–16m (Vigors, Horsfield, A. Smith)* **42** *10w* 3–4 *29–32m (A. Smith, Selby)* **45** *19m* **50** *6–8m* **54** *5w* 4–5 *10–12m* **55** *1m, 7–8m* **60** *9w* 3–4 Eggs **64** *1w* 4–5 **67** *24–26m* **68** *5–7m (Thompson)* **69** *10w* 2–3 **72** *31–33m* **73** *6–16m (Audubon), 13m, 33–34m* **74** *6–8m, 24w* 5 **77** *33w* 3 **79** *31–34m* **82** *30w* 3–4 **83** *14–15m (A. Smith), 17m* **88** *6w* 2 **91** *8–12m* **92** *14w* 3–4 *27–28m* **95** *33w* 4–5 **96** *19–21m (Temminck), 23–24m, 25–26m, 31–34m (Richardson, Swainson)* **99** *18–21m/19–20u "frequently|proportions"* **102** *9w* 4 **109** *31w* 2–3 **114** *11w* 4–5 **117** *16–17m/17u±* **118** *20w* 4–5 **119** *12–14m/13–14u "In|Owls"* **122** *29w*♦ 5 **124** *1–2m/1w* 3 *20–22m (Richardson)* **125** *1–4m (Gould)* **128** *18w* 4 **129** *18–22m (Jardine, Temminck), 25–26m* **132** *25w* 3–4 **133** *1–2m, 2–3m* **140** *9–12m* **143** *10–12m (Rennie)/11w* 2 **147** *33–34m/w* 2 **152** *16w* 5 *27–28m, 29–31m, 32–33m* **156** *17–21m* **157** *2–3m* **159** *3–5m, 5–24m/7–21m (Cuvier)/12–14w* ie both have changed from young *30–33z/zb* **161** *28w* 4 1/2 *32u "vary|markings"/31–33m/w* 2 species **162** *4–6m* **166** *19w* 4 1/2 *29–32m/x*✍ *(A. Knight)*Q **170** *10w* 8 *18–20m* **174** *16–18m* **177** *10w* 5 **181** *19w* 4–5 *20m/u "sometimes", 22m* **182** *7–9m, 12–13m (Selby)* **186** *16–28m, 33–34m (Temminck)* **191** *16w* 5 **194** *33w* 4–5 **195** *31m, 33–34m (Nilsson)* **200** *6w* 6 **204** *19w* 4–5 **209** *5w* 4–5 *10–12m, 21–22m* **214** *20w* 4–5 **221** *6w* 4–5 **225** *4w* 4–5 *15–16m (Strickland)* **231** *17w* 6 *26–27m (Hewitson)* **232** *30–35m* **235** *15w* 5 **237** *13–16m* **239** *1w* 5 *20–21m/21u "obtained|Ireland"* **243** *1w* 5 1/2 **246** *2–5m, 31w* 5 1/2 **247** *13–15m (Pallas), 24–26m* **248** *20–26m* **251** *8w* 5 1/2 **256** *1w* 6 **263** *1–2m/w* 5 **266** *31w* 5 1/2 **269** *3u "Montagu|Dict."* **270** *7–9m, 12–14m* **271** *17w* 4 1/2 **275** *31–34m* **276** *25w* 4 1/2 **277** *22–24m (Blyth)* **281** *25w* 5 *29–30m* **282** *13–14m* **283** *23–27m (Temminck)* **286** *24w* 4 1/2 **290** *15w* 4 1/2 **294** *32w* 4 1/2 **295** *21–23m (Blyth), 25–26m (G. White)* **299** *9–12m (Selby), 30–35m* **300** *1w* 6 **303** *31w* 6 1/2 *34m (Doubleday)* **308** *31w* 6 **309** *17m* **312** *14–17m, 22–24m (Montagu), 33u "Godalming", 34u "bird|plentiful"* **313** *1–2m/1u "those|Wren"* **314** *10w* 4 **315** *15–17m* **319** *3–4m/3u "under", 13w* 8 **323** *1–3m, 4–5m (Temminck), 16w* 7 *26u "common|forests"* **324** *7–9m*♦ **327** *14–*

16m/15u "small birds", 19–22m **328** *10w* 7 1/2 **329** *25–27m* **331** *19w* 9 **336** *4–9m/8–9w* 9 **338** *19w* 7 **341** *19w* 6 1/2 **346** *28w* 11 **352** *13w* 5 **364** *14–16m/15u "varieties"* **366** *4w* 4 1/2 **371** *25w* 5 1/2 **375** *15–17m (Gould)* **382** *30–31m* **386** *16w* 4 1/2 *17–18m* **391** *1w* 5 *14–16m* **395** *28w* 4 1/2 **396** *8–10m (Swainson), 18–20m (Temminck)* **404** *2–5m/? (Gould)* **405** *21w* 4 1/2 **411** *15w* 4 1/2 *32–33m* **412** *33–34m/m* **414** *8–12m/w* granivour Birds **417** *13–14m* **418** *21w* 4 1/2 **423** *27w* 7 **432** *17w* 5 **434** *18w* 4 1/2 **441** *13w* 4 1/2 **444** *11–13m (Blackwall), 17–20m, 20–24m/"..."/21–24m, 30–32m* **445** *7w* 5 **449** *17w* 4 1/2 **459** *16–18m* **463** *7w* 4 1/2 **466** *31–32m* **467** *22w* 4 1/2 **470** *9–13m, 24–32m* **471** *8w* 5 **472** *15u "Lapland", 19–20m/u*↔ **474** *2m* **475** *29w* 5 1/2 **476** *2–7m* **477** *30–34m* **480** *29–31m/29w* 5 **485** *24w* 5 **493** *6w* 4 1/2 **497** *23–25m* **498** *23–26m (Jardine)* **500** *7–11w* How many Birds same with Japan *9–11m (Temminck)* **504** *31w* 4 1/2 **506** *23–24m, 26–29m* **515** *26w* 4 1/2 **523** *22w* 6

YOUATT, William *Cattle: their breeds, management, and diseases* London; Baldwin & Cradock; 1834 [CUL, S]
ad, beh, br, cc, ch, cs, ds, em, f, fo, he, is, or, phy, rd, sl, sp, spo, sx, t, ti, tm, v, wd, y

NF 84 & 184 – duplicate pages
NB 9; 10; 28; 31; 33 to 270; 283; 311; 522 to 525; 529
174 & 283 important Rudiments
calling
191 grain of the meat; 227
SB ❑β
48 Q✍ Old Welsh cattle white red-ears Q✍ Even in our Parks selection is required to prevent accidental Variation of each crossing
51 S✎ Curious case of quick deterioration by neglect in Glamorgan. Cattle showing some selection always going on
62 Q Welch Cattle cannot be improved by crossing 69 Scotch do.–; 78◆ do; 88–163◆
75 Great improvement by crossing in 10 years in Arran
116 S✎ English Cattle have strongly altered since Henry VII time & doubled their size (insensible selection)
116 S✎ Selection governed by soil Each District has prejudice for own Breed
128 Ayrshire Breed has originated within century – how not known – probably crosses Azara states appeared in old age
155 Galloway with rudimentary Horns 174 at early age
116 Fifeshire same case shows origin not known till well formed Breed

190 The great progenitor of Long-Horn when yearling very unpromising.
193 Shakespeare bull. A sport in shape
197 In Long-Horns, when castrated Bulls get shape of cows horns
199 S✎ Q Capital sentence about one improved Breed expelling others good for Ch 6.
202 Q✍ Cross between Long & short-Horned 1/3 fail of being in calf
230 S✎ On crossing with Selection in Short-Horn Breeds.
242 Q✍ In Short-Horns whenever White appears always red about ears
248 Q On replacement of Breeds in same district
283 Frontal Bones narrower in polled Cattle & 174 Rudiments
310 Calfs eating poisonous Herbs, when turned out without their mothers Ch.10
524 Explains how in well-bred animals, the influence of male may be greatest, from having been truer bred
527 ✍ On gestation of cattle Q✏
17 Devonshire Ox larger than Bull & much larger than Q
SB2 Dr Pritchard by showing that the different races of Man when transported to different countries obtain certain peculiarities does not disprove there are constitutional differnces – it is begging the question if it be assumed they cannot be acquired.
I presume the udder of the Chillingham cattle is not the least like that of a good milker
Many subjects must be selected from this Book = A history of the varieties of each district & fossil oxen = How obscure the genealogical descent:= ill effects of interbreeding = – Minutiae heredetary = Length of time to form true race =

viii *12–19m/14–15w* read **9** *13–18m, 16–31m* **10** *33–42m* **11** *39–43m/w* yet so many breeds! *47–51m (Somerville), wb* not true with respect to Sheep V Phil. Transact. **14** *29–33m* **17** *7–9m/*Q*/9u "the | aware"* **28** *wt* This is a kind of instance of law of equivalent development mentioned by French writers *1–5m/w* Fleece & fat in sheep *4–9m, 8–9m* **31** *3–9m, 44–47m/45u "speedily | age", 50–53m* **32** *14–19m/15–16u "defect | pugnacious"* **33** *24–32m, wb* These are results of experiments **36** *24–30m* **37** *3–5m/4u "best | chosen"* **41** *33–36m/34–35u "There | places", 40–43m/41u "much | some", wb* even colour uniform **42** *3–7m/5u "once"* **44** *17–20m* **45** *13–17m/15u "indicates | temper", 26–29m* **46** *20–22m, 23–25m, 31–33m/33u "they |*

exceedingly", 45–46u "dairy|counties" **48** *wt* This is really like bars on Pigeons – considering that Falklands were Spanish & Tinian *1–5m, 8–16m, 10–16m* **49** *5–8m, 27–31m/29u "steer|appearance"* **51** *17–55m/w* very curious History **52** *21–26m* **53** *1–4m, 7–10m, 13–27m/fig.m* **54** *1–6m* **58** *22–26m* **60** *11–12m/11u "steers|be"* **62** *48–49m/*Q **66** *wt/1–17w* In wild countries where a good many are killed out & conditions uniform it certainly appears XX scarcely possible to cross the aborigines – they so far become like species *20–25m/x, 22–38m/38x, 52–55m, wb* Dr. Fleming says fossil oxen of Ireland♦ Scotland larger than present **67** *wt/1–7w* XX It shows that these races have a considerable degree not only of similarity one to another/of perseverance of characters & this is one chief character of species **69** *35–41m/*Q **75** *27u "1822", 33–34m/33u↔, 42–44m/43u "1832", 49–52m* **78** *43–44m/*Q*/u "farmer|properly"* **80** *1–4m* **88** *12–18m/16–18*Q **105** *18–20m, 23–26m* **115** *4–8m, 51–55m* **116** *3–8m, 9–12m, 16–18m, 17–22m, wb* In Parks aided by selection.– *wb* (a) These facts explain curious statement of Mr Anderson of fine-fleeced sheep of some northern isld being little affected by imported **122** *51–54m, wb* again deer eat different food **125** *18–23m* **128** *fig.c, 25–30m* **129** *fig.m, 31–33m* **149** *28u "1798", 35–44m/39m♦/x✎, 42u✎ "which|Ayrshire", 45–51m* **154** *32–38m* **155** *2–5m, 6–10m* **162** *1–5m* **163** *1–11m/4–6*Q **164** *2–5m* **166** *29–37m* **167** *wt/1–15w* the adaptation of coat to climate Curious case of vis medicatrix.– *15–25m/x, 29–32m* **171** *17–20m, 40–56m (Boswell)* **174** *35–39m/37–38u "even|age", 38–40m, 39–42m (John Kirby)* **181** *2–6m, 21–28m* **183** *50–55m* **184** *5u "early maturity", 6–7m, 7u "do", 9–11m, 25–29m, 26u "introduced|improved"* **188** *17–22m* **189** *9–17m, 17–20m* **190** *24–54m/36u "when|unpromising"* **191** *27–29m, 35–36*Q *36–37m, 38–41m/41u "breed", 44–46m, 47–49m* **192** *3–7m, 8–13m, 57–59m* **193** *25u "Shakespeare", 31–32*Q *33–37m, 56m (Marshall)* **194** *1–2m, 24–28m, 32–35m, 32–33m, 40–43m/40u "1791"* **197** *25–28m/*Q **199** *1–5m/2u "early maturity"/3u "gained|in", 24–28m, 33–37m, 34u "Westmorland", 40–43m, 48–54m/*Q*/54u "It|nature", wb* less♦ than♦ 100♦ years♦ get dates of introduction highest prices given 40 years before **200** *1–2m, 21–25m, 30–34m/32u "the|preferred"* **201** *53–54m* **202** *1–4m, 30–35m, 31–32m, 41–44m/*Q *45–51m, wb* Does this occur in crosses between Short-Horn & Welch **203** *9–12m, 43–48m* **204** *23–29m* **205** *1–4m* **208** *23–26m* **217** *21–23m* **220** *12–14m* **222** *13–18m/14u↔/16u "bred|certain"* **223** *41–46m, 48–53m, 55m* **226** *33–34m/33u "be|invite"/34u "taken|breed"* **227** *6–9m, 15u "eighty years"/15–18m, 25–28m, 28–30m/30u "of|fat"* **229** *5–8m, 56–61m/59u "with|horns"* **230** *33–47w* This makes cases very like <u>selection</u> from small varieties naturally produced *38–46m* **231** *wt¢¢, 19–59w/wb* at the rate of 157 gns each divide & give sums as proof of reality of value **232** *25m/w, 38m/w, 49m/w¢¢* **233** *14–17m/15w* recapitulates *26–34m/27–28w* do. **234** *18–21m, 37–42m/38u "early maturity"/39u "characteristic"* **239** *4–8m, 30–34m* **242** *11–17m/*Q✍*/17u "are|named"* **243** *11–16m/11u "improved"/14u "combination", 18–19u "general impression", 24u "but|time"* **245** *46–55m* **246** *31–36m, 32u "different|doubted"* **248** *21a "countries"/wt* Elsewhere (p.199) speaking of ♣ extention of the Red one near Dishley he says "it wd seem ↕*w* one variety replacing another each sometimes varying – analogy with species *14–17m/16–17"..."/17u✎ "the|the", 19–21"..."/19u✎ "To|long", 20–26*Q✍*, 27–29"..."/w⊄, 27–28u✎ "Holderness|breed", 29w*♦ ●, *⇑25–18m, ⇑19–17m/14–12m/!!, ⇑15–13*Q✍, *⇑9–6m*✎, *wb* Mrs T had two cross-births Mrs C. her daughter has had two – is this frequent → This variation of birth are checked; I believe 3 out of every 100 women die in childbirth – ♣ in long run those with such tendency, would be killed out.– **267** *15–18m* **268** *12–13m* **269** *8–12m, 29–32m* **277** *44–52u±, 46–47u/w* ● **282** *41–50m* **283** *10–13m/10–11w*♦ **310** *52–55m, wb* shows not quite instinct **311** *1–6m*

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522 *wt/1–51w* as this simple principle only lately discovered even in most reliable practice, no wonder not discovered, as theory of species *37–41m, 44–51m (Berry)* **523** *wt* When did <u>Favourite</u> live? *1–3m, 4u "present day"/w* 1833 *33–39m, 47–55m/55u "Quarterly|Agriculture", wb* not owing to sex from fact of Arabian Mares **524** *wt* Bruce explains mares most esteemed by Arabs because don't neigh on robbing excursions *1–11m, 48–56m* **525** *17–23m* **527** *54–56m/56u "difference|days"* **529** *1–13m, 17–33m*♦ **590a** *32–36m* **600** *wt*✍ colour & pure race 242

YOUATT, William *The dog* London; C. Knight & Co.; 1845 [CUL, S]
beh, ch, cs, dg, ds, pat, phy, sl, sx, tm, v, wd

SB1 3; 6; 9; 11 Falconer about bull-dog degenerating in form; 14; 16; 31; 32; 38 to 72; 74; 90 to 104; 167; 182; 183; 186; 232; 238; 245; 249

SB2 ❑β
Special Dogs not abstracted
15 Wild Indian Dog tamed Q
90 Setter Historically known to be Spaniel; see what insensible Selection has done Q
16 Deterioration of Dogs in India Q
31 On the cross of Grey-hound & Bull-dog Q – Instinct
35 In greyhound all depends on true Breed p.31 Change in.
73 difference in size of Dogs & Bitches
92 Pointer so closely allied to Hound makes the pointing more odd N.Q
182 167 Q certain dogs most subject to certain diseases 232 Distemper, Terriers specially white ⟨*u*✎⟩
186 & 238 Difference in pulse, in different Breeds Q
249 On Number of toes in Dogs NQ

3 *10–14m, 32–41m (F. Cuvier)* **6** *7–8m, 10–15m, 18–23m* **9** *49–52m* **11** *13–22m, 25–26m/?, 46–47m* **14** *1–5m* **15** *3u "búánsú", 29–31m/*Q **16** *1–9m/3–5*Q **17** *38–45m* **21** *43–51m* **31** *1–7m, 43–50m/44–46m* **32** *17–23m, 25–31m* **33** *5–9m/6u "altogether|scent"* **34** *25–26m, 29–31m* **35** *15–18m/15–16m, 22–25m* **38** *28–30m, 38–40m* **40** *23–28m* **41** *1–4m* **42** *15–18m, 18–21m, 22w* 12 var. **44** *47–49m* **45** *8–10m, 11–12m* **46** *14–17m* **50** *27–31m, 44–46m* **62** *11–17m* **72** *21–25m* **73** *5–7m/2–10w* Does not Greyhound differ remarkably V. Martin **74** *34–38m* **90** *24–29m* **91** *1–3m, 3–19m, 16–21m/17u "Irish|exceedingly", 20u "English|setter"* **92** *25–26m, wb* this makes the instinct more curious, as with setter alliance with Spaniel **93** *18m, 19–26m, 29m, 34m* **103** *8u↔, 17–19m* **144** *5–11m/10u "five months"/11u "seventh"* **153** *3–22m, 15–17m, 17–21m* **154** *1–7m* **167** *47–48*Q *48–50m* **175** *13–19m* **182** *39*Q *40–42m* **186** *38–42m* **225** *44–47m* **232** *20–30m/22–23u↔, 32–35m* **233** *48–49m* **234** *34–39m, 40–42m* **235** *23–24m, 26–27m, 35–36m, 44–45m* **238** *18–22m* **239** *21–22m, 49–50m* **240** *14–15m, 15–16m* **245** *15–20m* **249** *33–36m, wb* How is this in other Canidae Cats same as Dogs Hyena all 4 toes Civettes all 5 toes.

YOUATT, William *The pig* London; Routledge, Warn & Routledge; 1860 [CUL]
br, cs, he, sl, sp, sx, ta, v

SB Abstract
piii on Selection Q✍ (with crossing
p11 Pedigree of Pigs (Q under Pigs) for selection
p24 25 On Prejudices about colour in Pigs which Q would influence selection; also Trueness of Marks; White Pigs Blister
27 Reversion after 27 years
29 30 33 34 36✎ on in & in breeding – separate families
✐ All these References for Vol I located in proper places

iii *16–23m/w* crossing ● **3** *26–30m, fig.w* delete **7** *17–25m* **11** *10–13m/*Q **14** *fig.c* **18** *wt/1–11w* p.24 is not believed to have been crossed by Chinese or Neapolitan *6–11m/7u "white breeds"* **19** *28–32m/29u "photographs"* **22** *16–19*Q✍ **24** *21–23m, 34–37m* **25** *20–27m, 25–28m* **26** *10–13m* **27** *17m, 18–22m* **29** *12u*✎ *"second|female", 21–25m/21m/24–25*Q *25–28m* **30** *12u*✎ *"Mr. Fisher", 18–25m/*Q*/22u*✎ *"Improved Essex", 33–35m, 34–35x*✎ **33** *11–15m/x*✎ **34** *35–41m, 38–39m* **36** *32–33m* **37** *1–6m* **59** *20–24m* **61** *wt¢¢, 7–13m/*Q *12–14w* 14 days difference *wb¢¢*

YOUATT, William *Sheep* London; Baldwin & Cradock; 1837 [CUL]
beh, ch, cs, dg, ds, pat, phy, sl, sx, tm, v, wd

NB1 163 Where has Daubenton published an account of his crosses in Sheep? Where see French Agricult. Periodicals
234 only Lambs?
240 "dropt Horn" Ewes
238 about Dorset having premature period of oestrum
491 Hot country Sheep all phthisical: Will they breed?– get full particulars
496 Tessiers Paper – date?
✐ p364 Horns misplaced growing in throat
NB2 20 Rudiments do p364 by crossing
8 to 25; 60; 64; 69; 70; 11 to 194; 134 Female Musmon without Horns sometimes; 227; 233 to 352; 363; 364; 371; 374 to 377; 404; 407; 408; 491; 492 to 495; 496; 506; 508; 520; 534; 541; 543; 148 Merinos (as for female having horns)
✍ ☞ Read Journ. of As. Soc. of Bengal. vol 10. part 2. p.881 (in Geolog Soc) E. Blyth on wild sheep–
SB1 ❑β
✎ Good Select
18 Ancient selection
19 Return of sheep to dark colour occasionally
145; 234 R✎ i.e. taking after other vars. R✎
20 All hornless breeds occasionally drop sheep with horns or rudiments of? Ch.I. throwing back
25 Fat-tailed sheep, mem rudiments of tail compensation Ch.I
60 Splendid sentence on Selection S✎
70 Effects of pastures Q✍ on wool p.70

p.185 in Australia counteracted by Selection S✎; 117 do; 120 & 167 do
✍ 71 on slow & Q insensible changes in wool of British breeds
114 3 vars. of fat tailed sheep (120 fat under throat Q✍)
121 Guinea sheep males horned females hornless
131 & 134 In Argali smaller
138 Horns of Wallachian Q✍ p.148 of Merino Ewes Hornless 234 Horns of South Downs 247
123 old crosses of Spanish & Morocco sheep S✎
142 Many Horns generally accompanied by worse fleece (correlation) Q✍
142 Livingston on pendent ears proof long domestication (disuse)
147 in 1464 sheep exported from England to Spain S✎
152 On the Migratory sheep of Spain
171 Selection of Merinos in Saxony S✎
172 important under Law of Variation
178 in 4th cross Wool altered completely–
181 Merino sheep not quite fertile when first introduced into England
✍ Roulin on sheep in S. America not quite fertile
266 Welch sheep returning thrice into Wales Q
293 Hardiness of Cheviots proved by even crosses failing
301 Sheep descending to coast instinctively for sea-weed
312 Strong sentence Q✍ on each sheep adapted to its district. Two main Fam. long & short wooled vars.
312 Sheep separating Q✍ according to their Breed, when turned out (Ch. 6. Separation
314 On Selection altering breeds of sheep within 50 years without crossing by unconscious selection S✎
319 good sentence S✎
315 excellent case of two men unconsciously altering their breeds by selecting for different objects
325 Leicester sheep not fitted for mountain pastures. Q✍ Black-faced resist crosses Q **SB2** ☐β
364 Crosses producing rudimental Horns
377 Sheep returning home Q
404 Lambs if separated from flock will eat poisonous herbs Q
408 on ears pendent or erect according to locality inhabited
491 on great difference in Sheep from foreign countries in Zoolog. Gardens to die of Phthisis Q✍
494 On qualities becoming fixed by selection & fitted to their own districts S✎
avoid too close breeding in–
496 Tessier on gestation of Ewes ✍ Paris 1817 see Roy Cat Book NQ
520 On drafting the Ewe flock good✍ sentence✍ S✎
Variability of best breeds S✎

title page *wb* 1838 **8** *37–41m/38u "fundamental principles"/37–39"..."* **11** *21–24m* **17** *40–43m* **18** *6–10m, 17–20m* **19** *15–19m* **20** *1–6m* **22** *8–11m, 20–21u "are|generally"* **23** *10–14m* **24** *14–16m/14u "the rump", 44–48m, 48–50m* **25** *3–7m/4u "sheep", 13–16m/?/16u "and|unnatural", 39–42m* **60** *18–31m*✎, *20–24m/21–23"..."/20w* (a) *30–31m, 39–41m/39u "It|different", wb* (a) Is not this work, the last of Youatts after most experiences **64** *18–22m, 29–32m* **69** *15–20m (Somerville), 41–45m* **70** *3–5m, 23–25m, 42–47m, 45–48m* **71** *3–7m, 8–19m* **103** *43–44z, zb* **111** *1–2m, 11–12m, 23–25m* **113** *2u "Cheviot", 9–10m* **114** *1–11m, 17–19m* **117** *9–11m/10u "close|wool", 14–25m/18–19Q* **120** *18–23m, 39–46m/42–44Q 45–46m, 47–50m* **121** *14w* Bearded sheep enquire above *25–27m/25u "The|horned"/26u "the|hornless", 43–46m, 44u "from|East", 45u "prolific"* **122** *27–30m (Geoffroy, Wilson)* **123** *22–29m, 50–53m* **124** *5–9m* **126** *10–13m* **131** *20–27m/22u "The|and"* **132** *32–34m (Hamilton Smith)* **133** *3–14m* **134** *1–3m, 42–44m* **135** *26–28m* **136** *11–14m (Walton)* **138** *8–12m* **139** *25–28m* **141** *15–19m*♦, *20–21m* **142** *1–4m, 34–37m, 53–56m, 53m, 55m (Livingston)* **144** *20–23m* **145** *19–20m/20u "A.D.41", 44–54m/49u "fixed|in"* **146** *33–36m/34–35u*↔, *46–47m* **147** *24–26m/26u "1464", 27u "sheep|Spain", 31–33m, 32–33u "staple|flock"* **148** *3–6m, 4u "considerably preponderates", 19–22m/20–21u*↔ **149** *18–22u*± **152** *wt* P̲ like the Gnoos of S. Africa *4–6m, 49u "Farmers|1826"/48–53w* How do they dung. Guanaco? *50–57m/w/wb* Curious hereditary Tendency or habit copied from generations to generations N.B This is good caution often to insert **153** *wt* z The remembering or associating Time one of the most remarkable parts of this case, D'Orbigny fact of CaraCara every 3 weeks *8–10m/w* excellent case *12w* z *13–16Q 18–23w* In phil Edinburgh new good similar case of Rein-Deer *55–56m (Dillon, Livingston)/56w/wb* Study these References **154** *16–17m/13–20w* date of commencement of migration *32–34m/32u "both|ewes"* **158** *12–14m (Lasteyrie), 15–19m, 38–39m/39a "kingdom"* as in every country yet mentioned (a) *wb* Most of these differences unintentional **159** *12–13m/12u*↔, *36–37m* **160** *3–4m, 7–9m* **161** *54–55m/54u "de|Fran."/55m/u "articles, wool", wb* Compare with Spanish accounts **162** *2–6m/2–3u "fine|for"* **163** *39–50m (Daubenton)* **164** *21–24m/21–22u "fourth|fifth", 41–42m/42u "wools|long"* **165** *1m/m/u "kinds|improvement", 17–18u "native|improves", 20–21m*♦, *30–33m* **166** *35–39m/37–38u "speedily|or"* **167** *41–43m, 42–49m/44–45u "neglect|deteriorated", 46–47m* **168** *2–7m, 13–16m, 46–47m/46u "thus, necessity"* **169** *9–10m/10u "small|breed", 16–20m, 23–24m/24u "cattle|polled"* **170** *32–35m* **171** *4–7m, 9–11m, 12–34w/wb* Selection has here quite overruled effects of change as far as wool is concerned *21–22m, 25a "that"* In Saxony *26–28m/26–27u "The|breeding"* **172** *1–3m/2u "second", 4u "third", 5..."/u "slightest blemish", 26–31w* surely this ought to be the continuance of such qualities? *31a "too"* continuance of the, see next page *31–33m/w* (a) *33"...", 35u "particular|selection", 48u "country degenerated", 38–55w/wb* (a) This is important remark, showing that even these most external peculiarities are not invariable effects of climate, but from careful selection **173** *3–7!/3u "less|Merino"/5u "11|18"/7u "60|65", 15–17m, 19–21m* **175** *34–35m* **178** *5–9m, 35–37m/35u "Wiltshires"/w* p.244 *35u "ewes|hornless"/34–40w* p.148 a few only of true Merino ewes are horned *43u "fourth", 56–57m/57u "fourth"* **179** *49–50u "several|bore"* **180** *53m* **181** *9–11m/10u↔, 37–40m/39u "three|Merino", 52–53u "great|barrenness"/*Q *56–58m (Somerville), 56u "It|after", 58u "lambs|occurrence"* **182** *37–39m/"..."* **183** *25–27m* **184** *1–9m/4–5u "an|influence", 9–16m, 22–28m, 31–34m/32u↔, 41–46m* **185** *3–8m, 18–20m* **187** *45–46m* **188** *1–4m* **189** *9–10m* **194** *27–29m/27u "Winchester"/27u "short-woolled"/28u "would|breed"* **227** *27–33m, 30–31u "staple|larger", 38–43m* **233** *7–9m, 18–19m* **234** *9–12m/10a "lambs"* only?? *19u "the conclusion"/18–21m/w* Squirrels & Marmot **235** *29–32m* **237** *11–17m/14u "it|character", 40–43m/42u "the|breed"* **238** *3–5m/3u "Wiltshire|variety", 9–11m/9u "contest|attended", 16u "where|suited", 32u "Dorsets"/33u "Pampered|oestrum"/29–36w* Period of pregnancy 5 months **239** *1–2u "contrive|gives"* **240** *4–7m/6u "or|Down", 17u "Dorsets", 18u "dropt-horned"* **241** *25u "very|them", 29–32m/30u "Dorset|sheep"* **243** *12–14m/13–14u "the|Dorset", 18u "being|hornless", 25–29m* **244** *28–31m* **245** *3–5m, 27–31m* **247** *45–49m/47–48u↔* **248** *22–23m* **249** *9–11m/9u "value|ewes"* **251** *6–10m* **252** *14u "horned|Leicester", 17–20m* **253** *37–39m* **254** *22–25m, 25–28m* **255** *2–5m/2u "South Downs"/3u "failed", 6–7u "The|employed"* **256** *14–18m/14–15u "Mendip|degree", 23–26m/24–25u "genuine|country"* **257** *38–43m* **258** *12–15m/14u "food|breed"* **259** *6–8m/6–7u "Hereford|1343"* **260** *11–14m/12u "muscles Externally"/12u "it|within", 41–43m* **261** *7–9m/9u "pasture|with"* **265** *45–52m/45u "horned|polled"/46u "between|black"* **266** *55–56m* **267** *5–6m, 9–11m, 51–53m (Ellis)* **278** *33–37m* **280** *7–9m/8u "early", 15–16m* **281** *6–9m, 11u "frquently|horns"* **282** *30–35m (Hogg)* **283** *2–5?!/m* **284** *15–18m* **285** *15–18m/17u "at|crossed", 33–36m/34u "weight|months"/35u "could|old"/36u "must|corresponding"* **286** *46u "maturity|sooner", 48u "ever|behind"* **287** *19–24m* **288** *1–4m* **289** *33–37m/33–54w* faculty & not instinct any more than animals first perceive earthquake does not profit through **293** *13–17m/16u "naturalized", 35–36m/36u "to endure", 41–43/43–44u "not|alive", 45–55z/zb* **297** *20–21m/21u "often subject"/21u "the natives"* **298** *7–10m, 15–18m, 18–20m, 34–39m, 51m* **299** *1m/m, 1–4m/2u↔, 7u "improved|selection"* **301** *3m, 3–5??/4m, 6–13w* not common to all sheep *23–25m, 42u "Mugg", 44u "grow|toes"* **302** *33–34m* **304** *27m, 29–32m, wb* How much more the having horns varies in sheep than in cattle – no case of hornless cows – with horned Bull **305** *40–43m* **307** *39–40m/40u "Dorset ewe"/41u "old Wiltshire"* **309** *38–44m* **312** *16–20m/"...", 21–25m, 25w* (a) *26–32m/29w* (a) *31–37m, 41u "two|sheep", 46u "long wool", 49u "Marshall|75", wb* (a) as much adapted to two stations as any two species of deer are: Supports Anderson's views on Shetland Sheep **313** *6m, 8m, 9u "In|want", 11u "white|legs", 14m* **314** *14–17m, 40–42m/41–42u "appearance|sheep", 43–47m/46u "clear|defined"* **315** *2–3m (Bakewell), 4u "upwards|years"/3–9[...]/8–9u "appearance|varieties", 48–50m* **318** *32–33m, 35–37m, 43–44m/43u "inclination|maturity"* **319** *3–6m, 5–7m, 26–28m (Luccock), 53m/w* (a) *wb* (a) What objects to breed for – quantity of meat without selecting great bulk – early maturity & tendency to father good forms **320** *2u "greater|meat", 4u "their|excellence", 5u "so|breeds", 8–9u "possible|slaughter", 40–41m/40u "increased|both", 47–49m/49u "for|placed"* **323** *20–22m/20–21u↔* **325** *4–7m, 15–17m, 16–21m, 29u↔, 30u "sufficient|hardihood", 34u "less|old", 43u "seemed"/43–45m/*Q **326** *1–2u "The|rams", 4u "two|old", 9–10m/u↔* **327** *3–4u "has|immemorial"* **330** *34–46m* **332** *20–22m/20–21u↔* **335** *28–31m/29u "ready|for", 30–31u "that|animal"* **337** *49–50m/50u "Bampton|immemorial"* **338** *47–48m* **339** *46–48m* **340** *31–33m/31–32u↔* **348** *23–24m* **351** *50u "two|old"* **352** *1–2m/w* (a) *wb*

YOUATT, SHEEP

Early maturity was bred for & now can be obtained by cross – good parallel of two effects **363** *35u "superior quietness", 36u "points | sheep", 47–48u↔, 54u "more | pollard", 55–56m/u "but | temper"* **364** *1–4m, 42–43m, 51–55m* **371** *20–32m, 20–25m, 25–32m* **374** *29–32m, 41–42m/41u "should | separated", 44–46m* **375** *19–23m/21u "the | adherent"/22u "when | blind"/23u "abandoned | helpless"* **377** *1–4m/3u "p.266", 7–25m* **404** *21–25m* **407** *31–34m* **408** *4–10m, 19–22m, 23–24m, 33–35m/33u "The mother", 34u "other | the"* **491** *16–54w, wb* important, compared with Ourang – especially if they can be shown to be same species by crossing *49–51m, 51–54m/*Q *53–54u↔* **492** *1–3m* **493** *43–48m* **494** *2–6m, 27–30m, 31–33m, 42–49m, 42–45m, 46–49m, 50–53m, 56–58m* **495** *1–2m, 3u "must | blood", 9–10u "He | sheep", 15–16u "selection | breed", 18u "violent crosses", 23–25u±, 52–53m (Low, Dickson)* **496** *19–21m, 20u "or | ram", 41u "146 | 161", 42u "15 days", 41–43m (Tessier)* **508** *26–33m/28–31u↔, 38–41m/39–40u↔* **520** *2–3m, 5–8m, 8–9*Q *42–44m, 45–47m* **521** *13–15m, 35–41m* **534** *41–53m* **541** *35–41m* **543** *39–45m*

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PART TWO

INDEX AND CONCEPTUAL CONCORDANCE

"Curious coincidence in idea with what I have written" (849h)

Each annotation appears in the index as a string of topic-ciphers, the key to which is to be found on the fold-out sheet inside the back cover. Each entry is cross-referenced under each cipher in the string. Thus a statement involving the four ciphers A, B, C and D appears in Part two four times, as A–B–C–D, B–A–C–D, C–A–B–D, and D–A–B–C. The structure of the entries under each topic-heading is a s follows:

A [by itself] [pp.] 1 2 . . .
and [in combination] 3 4 5 6 . . .
infra:
A B C D 5
A C E 3 6
A D F G H 4

(etc).

epilogue

"I have now read your work, but I have nothing particular to say" (223e)

It seems that CD's ever-active spirit inspired the following distinctly prehumous reviews of this volume:

"Never mind" *Charles 'Woodward' Darwin*

"Excellent book" *Charles 'Wright' Darwin*

"Introduction good writing" *Charles 'Jenyns' Darwin*

"a miserable Book – all words, words, words" *Charles 'Geoffroy' Darwin*

"possibly serve for reference" *Charles 'Fleming' Darwin*

"Buy" *Charles 'Eaton' Darwin*

"goodish" *Charles 'Sully' Darwin*

"Many good bits in this Book, but the fundamental idea seems to me groundless & fanciful" *Charles 'Piderit' Darwin*

"first part merely amusing; Index . . . dull" *Charles 'Thompson' Darwin*

"Not much satisfactory too brief" *Charles 'Linnaeus' Darwin*

"Mental I think" *Charles 'Lucas' Darwin*

"I have only skimmed after p.150 for the whole a wretched compilation" *Charles 'Meyer' Darwin*

"Clever" *Charles 'Wichura' Darwin*

"very remarkable . . . very good . . . very common" *Charles 'Lyell' Darwin*

and last but clearly not least:

"Praise his book. Well-known for other excellent Treatises, & add much undervalued, in my opinion, by other writers – a vast step in advance" *Charles 'Duchenne' Darwin*

Topic ciphers

≈	COMPARISON
ab	ABORTION
ad	ADAPTATION
af	AFFINITY
beh	BEHAVIOUR
behb	BREEDING BEH
behc	COMMUNICATION
behe	EXPRESSION/EMOTION
behh	HABIT
behi	INSTINCT
behl	LEARNING/MEMORY
behm	MIND/COGNITION
behn	NEST BEHAVIOUR
behp	PERCEPTION/ SENSATION
behr	REFLEX
behs	SOCIAL BEHAVIOUR
br	BREEDING (ARTIFICIAL)
bri	IN-BREEDING
c	CRITICISM
c-	NEGATIVE
c+	POSITIVE
c1	OF CD
c2	BY CD
c3	OF THIRD PARTY
("c2+" = positive crit. by CD)	
cc	CLIMATE/CONDITIONS
ccc	CONFINEMENT
ccs	SEA (CURRENTS)
ccw	WIND/WEATHER
ch	CHANGE
che	CHEMISTRY
co	CORAL
cs	CROSSING
ct	CELL THEORY
dg	DEGENERATION
ds	DESCENT
dv	DIVERGENCE
em	EMBRYOLOGY
eml	LARVAE
emp	PUPAE
ex	EXTINCTION
f	FERTILITY/STERILITY
fa	FAUNA
🐇	NAMED FAUNA
fd	FOOD
fg	FERTILISATION/ GENERATION
fge	EGGS
fgn	NECTAR
fgp	POLLEN
fgs	SEEDS
fl	FLORA
flg	GRAFTING
flo	FLOWERS/BUDS
flod	DOUBLE FLOWERS
fls	SOCIAL PLANTS
❀	NAMED FLORA
fo	FOSSILS
gd	GEOGRAPHICAL DISTRIBUTION
gdc	COMMON FORMS
gdd	DISPERSION
gde	ENDEMIC FORMS
gdi	INTRODUCTION
gdn	NATURALISATION
gds	STATIONS
gdw	WIDE-RANGERS
geo	GEOLOGY
gr	GEOGRAPHY
grc	CONTINUITY
@	NAMED PLACES
h	HUMANITY
❡	PEOPLES
he	HEREDITY
hef	FATHERS
hem	MOTHERS
hep	PARENTS
her	REVERSION
het	TRANSMISSION/ TAKING AFTER
hl	HIGHNESS/LOWNESS
hom	HOMOLOGY
hy	HYBRIDS
hym	MONGRELS
ig	INTERMEDIACY/ GRADATION
in	INDIVIDUALS
ir	IMPERFECTION OF GEOLOGICAL RECORD
is	ISLANDS/ISOLATION
mg	MIGRATION
mhp	MOVEMENTS AND HABITS OF PLANTS
mi	MINERALOGY
mm	MIMICRY
mn	MONSTROSITY
no	NUMBER/INCREASE/ DECREASE
noa	AMOUNT OF LIFE
nos	NUMBER OF SPECIES
oo	RELATIONSHIP OF ORGANISM TO ORGANISM
ooh	HUMAN INTERVENTION
ook	KILLING
oopa	PARASITES
oopr	PREDATION
oos	STRUGGLE FOR EXISTENCE
or	ORIGIN
pan	PANGENESIS
pat	PATHOLOGY
phy	PHYSIOLOGY
phyfl	PLANT PHYSIOLOGY
r	RECEPTION OF DARWINISM
rd	RUDIMENTS
rs	REMARKS TO SELF
rsa	ASSESSMENTS
rsd	DATED COMMENTS
rse	EXCLAMATIONS
rsi	INSTRUCTIONS
rsm	"MEM"
rsq	QUOTE
(does not include "Q"/"NQ")	
rsw	WONDERINGS ALOUD
se	SUBSIDENCE/ELEVATION
sh	SHELLS
(shfw: freshwater; shl: land; shs: sea)	
sl	SELECTION
sp	SPECIES
spa	ABORIGINAL FORMS
spc	CLOSE SPECIES
spd	DOMINANT FORMS
spe	ABERRANT FORMS
sph	HIGHER GROUPINGS
spr	REPRESENTATIVES
spz	SPORTS
ss	SEXUAL SELECTION
sx	SEX
sx2	DICHOGAMY
sx3	THIRD/OTHER SEXES
sxb	GENDERED BEH
sxca	CASTES
sxch	SEXUAL CHARACTERS
sxd	SEX DIFFERENCES
sxm	MONOECIOUS/ DIOECIOUS
sy	systematics
ta	TIME/AGE (ORGANIC)
tad	DEATH
tag	GENERATIONS
tam	MATURITY
tas	SEASONS
tay	YEARS
ti	TIME/AGE (NON-ORGANIC/GEOLOGICAL)
tig	GEOLOGICAL PERIODS
tih	TIME (HISTORICAL)
tm	TYPE/MORPHOLOGY
tma	(ARCHE)TYPE
tmp	PHYSICAL CHARACTERS
tms	STRUCTURES
ts	TRANSMUTATION
ty	THEORY (GENERAL)
tya	ACCOUNT
tyc	CAUSATION
tyd	DEFINITIONS
tye	EXPERIMENTS
ud	USE/DISUSE (ACQUIRED CHARACTERS)
unc	UNCLASSIFIABLE
v	VARIATION
var	VARIETIES
vc	CONSTANT FORMS, RACES
ve	VOLCANO/EARTHQUAKE
wd	WILD/DOMESTIC
wdc	CULTIVATION
y	YOUNG/OFFSPRING
¶	NAMES AND REFERENCES

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